LOWER GREAT LAKES

DAY USE

RECREATION ACCESS STUDY

Ministry of
Natural
Resources

Ontario

DRAFT - MARCH 30, 1976

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Hon. Leo Bernier
Minister

Dr. J. K. Reynolds
Deputy Minister

N.B. LARGE SCALE AIR PHOTOS of ENTIRE SHORELINE ARE AVAILABLE AT M. of NAT. RES., QUEEN'S PARK.

DRAFT - MARCH 30, 1976

FOREWORD

This report was prepared as a result of the need to evaluate and to co-ordinate the various programs and projects proposed to provide access and certain types of day use recreation on the Lower Great Lakes shore.

The Great Lakes Access Working Group (G.L.A.W.G.) is a committee within the Ministry of Natural Resources that was established to scrutinize the numerous development proposals that are made to the government by municipalities and other agencies.

In 1975 funds were allocated for a study of the problem, and the Land Use Co-Ordination Branch of the Ministry of Natural Resources was given the responsibility of preparing a report to the G.L.A.W.G. The three southern regions prepared background material on resources and public consultation data, while the Policy Coordination Secretariat acted as a consultant in providing an analysis of user preferences and supply. In addition, assistance was given by the Division of Fish and Wildlife.

The result of the study, as outlined in this report, is a proposed means of evaluating proposals for development of new day use access sites on the Lower Great Lakes. The information displayed on the maps in the report is of course limited by the small scale of the maps. To supply the committee with more details a set of large scale maps has been prepared as an external appendix to this report.

Although there is nothing of confidential nature within the report it is not intended to be widely circulated since it was prepared specifically for the Great Lakes Access Working Group

The recommendations in this report express the Ministry's concerns for the provision of access. These recommendations will be an input to the co-ordination of such program assistance grants as the federal Ministry of the Environment Marina Policy Assistance Program grants; Ministry of Natural Resources Parks Assistance grants; Conservation Authorities grants; and any further Great Lakes Access Program grants.

SUMMARY

The shoreline of the Lower Great Lakes is a major provincial asset with great potential for residential, industrial, agricultural and recreational use. Much development has already taken place and more is occurring every day. It is essential to co-ordinate this development otherwise the rich potential of the area may be wasted. Over 100 municipal jurisdictions are involved in the area as well as the federal, the provincial and numerous regional governments.

The purpose of this study is to improve recreation day use access for the people of Ontario to the Lower Great Lakes. The report outlines an approach to evaluate the various development proposals for access so best use is made of scarce funds. To "improve access" is taken to mean to provide more access and to provide it in a way that most equitably meets the needs of the people of Ontario. The recreation activities of concern to the study are boating, bathing, angling and wildlife hunting and viewing.

The study looked at the natural resources of the area and their present uses and development. Very little original research was necessary since most data was available from previous studies and projects.

Resource data was analysed to identify the highest capability land for the recreation activities of concern. The data also provided the basis for identifying constraints to recreation development.

Present use and development data was used to provide further direction for proposed new recreation developments.

The supply of recreation facilities was recorded through the "Ontario Recreation Supply Inventory" and analysed by the Policy Co-ordination Secretariat. Using the Acar Allocation Model present supply per capita was calculated for each of 25 population centres in Southern Ontario. Data was only available for boating and bathing, therefore, a detailed treatment of the other activities of the study is not available.

The results of the supply allocation model as applies to the study show the following centres have the lowest supply per capita:

BOAT LAUNCHING	BOAT MOORING	BATHING
London	Kitchener	Ottawa
Niagara	London	Toronto
Hamilton	Hamilton	Cornwall

SUMMARY OF RECOMMENDATIONS

The following recommendations are made to provide guidance for evaluating proposals for day use recreation development on the Lower Great Lakes:

1. That high priority be given to proposed developments in areas of low per capita supply;

2. That no preference in priority be given to any particular jurisdiction (Federal, Provincial, Regional, Local);

3. That proposed recreation developments should not conflict with agriculture;

4. That high priority be given to proposed developments that are in or near existing settlements;

5. That proposed developments in or near sensitive areas be given extra careful scrutiny;

6. That water pollution not be used as a negative factor regarding access for angling;

7. That proposals for bathing access to known polluted waters be given low priority;

8. That high priority be given to proposed developments that:
   (a) Are on the highest capability areas for recreation (bathing, angling, or boating),
   (b) are on open space,
   (c) are on low cost land;

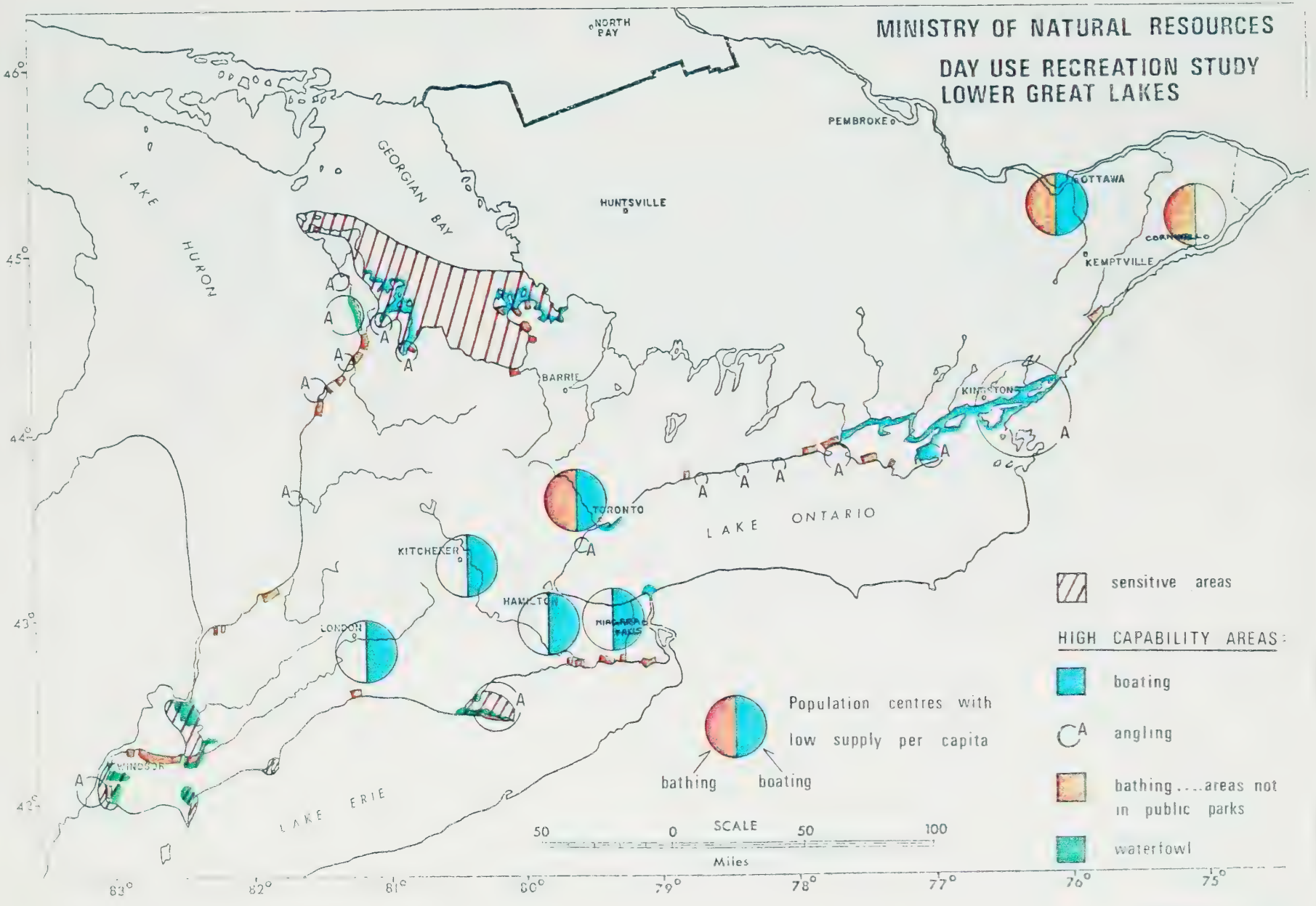
9. That proposals for small craft harbours be judged on the basis of day use boating.

The Summary Map illustrates the principle recommendations of this report.

The map shows the population centres that have the lowest per capita supply and the particular kind of shortage (boating or bathing). Proposed developments anywhere within two-hours travel of these centres would contribute to their supply. The closer a proposed development is to such centre the better.

The map also shows some of the resource information such as major sensitive areas, the best boating and angling areas and high class bathing shorelands that are not yet developed for public use.

In evaluating proposals for new recreation access, it is proposed that the Ministry adopt and utilize the recommendations of this report. It should also be stressed that the Regional staff of the Ministry have collected a great deal of information for this report concerning, among other things, the problems and issues of local areas. This has put the regions in a good position to judge proposals and their opinions should be sought and respected in these matters.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LOWER GREAT LAKES
NORTH BAY
PEMBROKE
OTTAWA
CORNWALL
KEMPTVILLE
HUNTSVILLE
GEORGIAN BAY
LAKE HURON
BARRIE
KINGSTON
TORONTO
LAKE ONTARIO
KITCHENER
HAMILTON
NIAGARA FALLS
LONDON
WINDSOR
LAKE ERIE
Population centres with low supply per capita
bathing
boating
SCALE
50 0 50 100
Miles
sensitive areas
HIGH CAPABILITY AREAS:
boating
angling
bathing....areas not in public parks
waterfowl
46°
45°
44°
43°
42°
83°
82°
81°
80°
79°
78°
77°
76°
75°

SUMMARY MAP

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I. INTRODUCTION

1. TERMS OF REFERENCE

The purpose of this study is to improve access to the Great Lakes primarily for day use recreation including the activities of boating, angling, bathing, wildlife viewing and wildlife hunting for the residents of Ontario.

The study area extends along the Great Lakes shore and interconnecting waterways, from Port Severn on Georgian Bay to the Quebec border on the St. Lawrence River. This includes approximately 2469 miles of shoreline.

In terms of width the area reaches inland up to one mile and out into the water body for a maximum of 3 miles. However, to deal adequately with the study area it was necessary to collect and analyse recreation demand and supply data for the whole of southern Ontario. This is outlined on Map 1.

It is recognized that while there is a great need for additional water-oriented outdoor recreation opportunities in Southern Ontario, the tremendous potential of much of the Great Lakes shoreline is underused. This study will identify those areas of greatest need for water-oriented recreation and those areas with the most favourable characteristics to satisfy these needs. In determining areas of access deficiency in the study region first consideration will be given to the day use

PROVINCE OF ONTARIO
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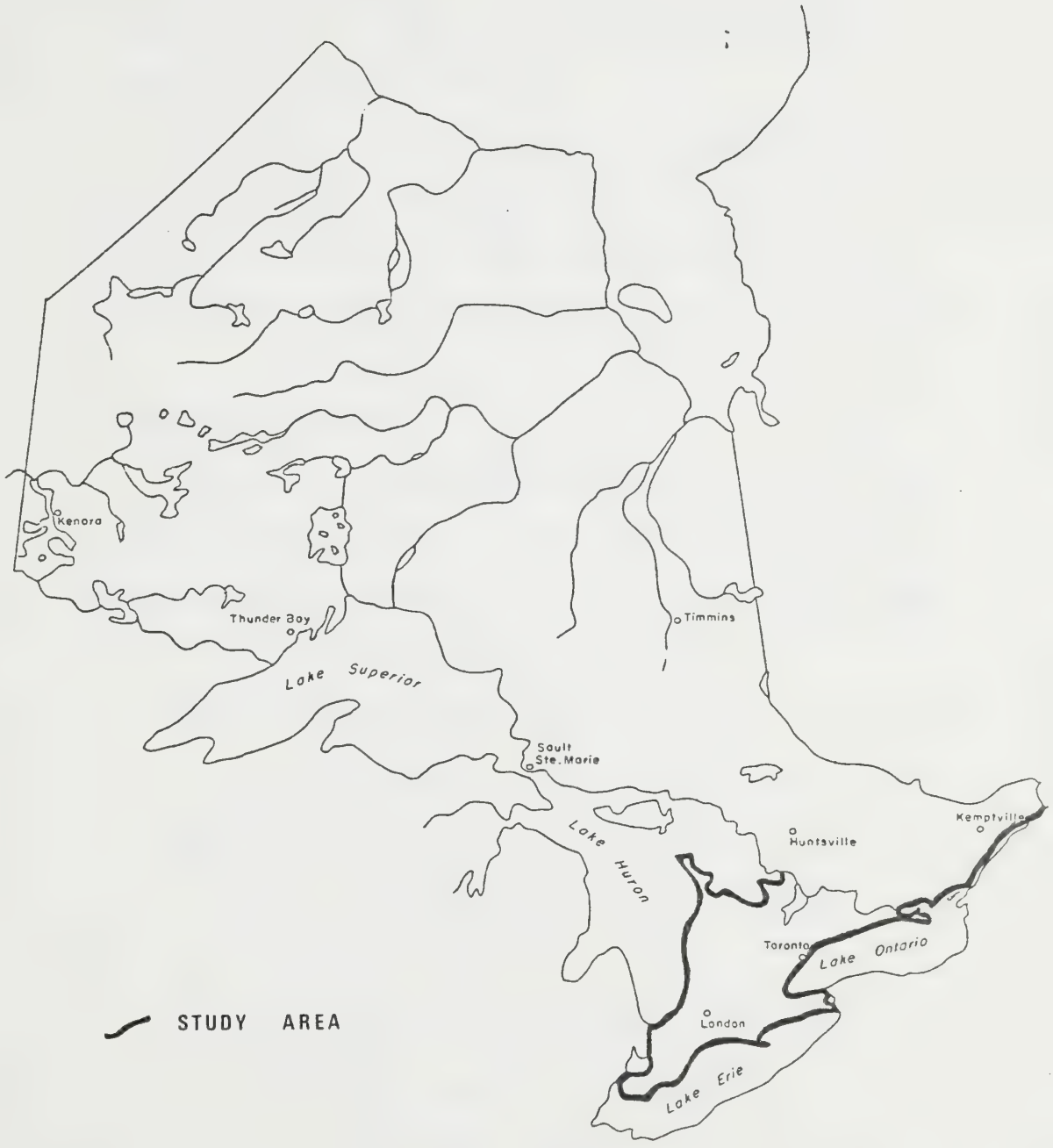

MAP NUMBER 1

needs of Ontario residents. It is recognized, however, that non-residents consume a significant proportion of the recreation opportunities in some areas, particularly South-western Ontario. Consequently, additional opportunities will have to be provided in these areas.

The background data analysis which is included in the first four chapters of this report, along with the policy recommendations of Section V will indicate opportunities and constraints for providing recreational access to the Great Lakes.

2. GREAT LAKES OVERVIEW

The Great Lakes are the largest fresh water bodies in the world. Along their shore, in Southern Ontario, major industrial and residential developments have occured. As a result a great need for recreation opportunities is evident.

A. PHYSICAL SHORELINE CHARACTERISTICS

To a large extent the physical characteristics of the shoreland influence recreation development.

For this study the shoreline has been divided into five major categories:

1) low plain, which have a bluff of less than 3 metres,

2) low bluff, which is 3 to 10 metres,

3) high bluff, over 10 metres,

4) beach, which is sand of width greater than 6 metres, and

5) wetlands.

For the first three categories material composition has been differentiated into bedrock, glacial drift, and artificial fill. This information has been derived from the Shore Damage Survey[1] and the federal Department of Public Works[2]. (See Map 2)

Georgian Bay - There are two major areas of low plain along the Georgian Bay shoreline located between Port Severn and Penetanguishene, and Collingwood and Barrow Bay. These areas are composed of both glacial drift and bedrock. Between these two areas the shoreline from Penetanguishene to Collingwood is a sand beach and dune complex.

From Owen Sound to Tobermory the Niagara Escarpment forms the Georgian Bay shoreline. North of Barrow Bay to Tobermory the shoreline is a bedrock bluff ranging from 3 metres to well over 10 metres in the northern section. This is the most prominent part of the Niagara Escarpment.

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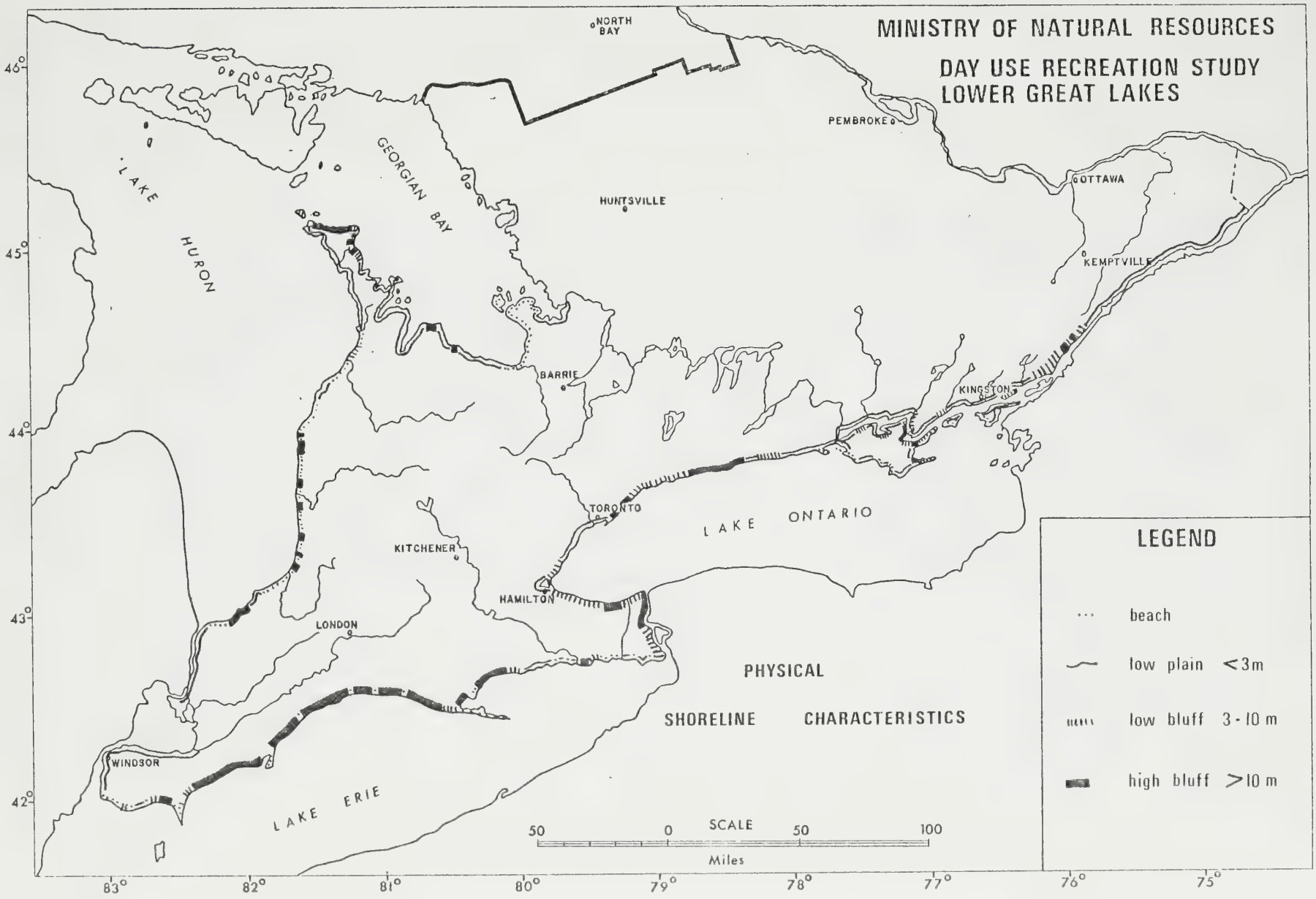
1 Boulden, R.S. (ed), Canada-Ontario Shore Damage Survey, Environment Canada and Ministry of Natural Resources, 1973.

2 Task Force Ship Maps, produced by the Federal Department of Public Works for the International Great Lakes Levels Board Study, IJC, 1966-69.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PEMBROKE
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GEORGIAN BAY
BARRIE
KINGSTON
TORONTO
LAKE ONTARIO
KITCHENER
HAMILTON
LONDON
WINDSOR
LAKE ERIE
PHYSICAL
SHORELINE CHARACTERISTICS
LEGEND
beach
low plain <3m
low bluff 3-10 m
high bluff >10 m
SCALE
50 0 50 100
Miles
46°
45°
44°
43°
42°
83°
82°
81°
80°
79°
78°
77°
76°
75°

MAP NUMBER 2

Lake Huron - The shoreline on the west side of the Bruce Peninsula is a low limestone bedrock plain. South of Sauble Beach to Point Clark the area is largely sand beach with the exception of low bluffs in the Southampton area, and the bedrock outcroppings in the Douglas Point area. The shoreline from Point Clark to Grand Bend is bordered by high bluffs, with little or no terrace below. There are, however, a few interspersed strips of sand beach.

From Grand Bend to Kettle Point there is a sand beach. Kettle Point, a low bedrock plain, is well known for its large round concretions. To the south the shoreline rises abruptly to high bluffs of glacial drift. The most southerly ten mile shoreland from Brights Grove to Point Edward is sand beach.

The St. Clair River - The shoreline of the St. Clair River is a low plain composed of glacial drift, specifically clay.

Lake St. Clair - The eastern shore of Lake St. Clair is a wetland. Included in this is bird's foot delta at the mouth of the St. Clair River, consisting of a series of islands including Walpole. The southern shore of the lake is a low lacustrine plain composed of glacial drift.

Detroit River - The entire length of the Detroit River is a low plain, composed of glacial drift.

Lake Erie - The western end of Lake Erie to Kingsville is characterized by a complex of sand beaches, low plains and bluffs. From Kingsville to just west of Nanticoke the shoreline takes the form of three big scallops with the sand beach spits of: 1) Point Pelee, 2) Rondeau, and 3) Long Point and associated Turkey Point, at the apexes. The latter two areas also have extensive wetlands connected to them. The scallops are high bluffs composed of glacial drift.

The shoreline east of Nanticoke generally is low and appears to be controlled by the surface of the limestone bedrock which forms headlands. Sand beaches have formed between these headlands.

The Niagara River - The Niagara River shore is a continuous bluff which rises downstream from Niagara Falls. The upper Niagara shore from Fort Erie to Niagara Falls ranges from 3 to 10 metres, while the lower Niagara shore from the waterfalls to Niagara-on-the-Lake is over 10 metres.

Lake Ontario - The southern shore of Lake Ontario from Niagara-on-the-Lake to Oakville is mostly low glacial drift bluff with the exception of the St. Catharines area, which is high glacial drift bluff, and Hamilton Harbour, which is mostly artificial fill fronted by a barrier sand bar. East of Oakville the lake shore rises much less abruptly as it is low plain. However, the drastic change occurs at the Scarborough Bluffs which reach heights up to 110 metres.

To the east, the shoreline while still mostly bluff obtains a height up to 10 metres only. Then between Oshawa and Port Hope the shore reaches heights over 10 metres.

The shoreline between Port Hope and Presquile is an interspersed area of low plain and low bluff. As the complete area from Niagara-on-the-Lake to Trenton is the glacial lake Iroquois bed, this section of shore is composed of glacial drift.

The Prince Edward County shoreline is irregular because of the number of deep valleys dissecting the limestone and thus forming long bays or inlets. The county has a slight gradient to the south and west so the western and southern shores are very low. In fact, the south shore is bedrock low plain and the western shore is

mostly bedrock low plain with beach bars stretching across the deeply indented inlets. The northern shore is low glacial plain while the eastern shore is predominately low and high bedrock bluff.

From Trenton to Gananoque the shoreline is largely low glacial plain with interspersed areas of low bluff.

St. Lawrence River - The shore from Gananoque to Brockville is a low bluff. The mid section is exposed bedrock where the Canadian Shield crosses the St. Lawrence River. East of Brockville to the Quebec border the shore is a low flat plain.

B. SHORELAND OWNERSHIP

The Great Lakes are a public resource, managed and protected for the use and enjoyment of Canadians. Yet 76 percent of the shoreline in the study area is privately owned. This ownership pattern, private land and public water has led to conflicts at the land water interface. When a shore property owner excludes others from his land, he is to a certain extent, excluding the public from the water also.

Of the publicly owned land, 24 percent is federal, 44 percent is provincial, and 32 percent is municipal. This represents a fairly even division.

Only part of the publicly owned land is available for recreation. Much government owned shoreland is used for harbours, water treatment plants, power generating facilities, office buildings, etcetera.

Of the federally owned land 25 percent is concentrated in Stormont County, with the St. Lawrence Seaway Authority as the principal owner. Other counties where federal land is concentrated are Hastings, Essex, and Grey with 12 percent, 11 percent and 9 percent respectively.

The most important provincially owned shorelands from an access standpoint are the provincial parks. Nine of these parks are located on Lake Huron, 1 on Lake St. Clair, 10 on Lake Erie, and 6 on Lake Ontario. The three Parkway Commissions, the St. Clair Parkway, the Niagara Parks and the St. Lawrence Parks, also represent major provincial recreational stretches of the shoreline.

There is a great variation of the percentage of publicly owned shoreland in each county. This ranges from 2 percent in Glengarry to 97 percent in Stormont. Those counties with less than 10 percent of the shoreline in public ownership are Huron, Kent, Elgin, Northumberland, Prince Edward, Frontenac, and Glengarry. Those municipalities with 50 percent and more of their shoreline in public

ownership are Hastings, Metro Toronto, Dundas, and Stormont. Refer to Table 1 for the complete county listing. However, no data is yet available to determine the amount of public land available for recreation.

When considering access, foreign ownership of the shoreline has been a continuous issue. Foreign ownership represents 14 percent of the privately owned shoreland, and 11 percent of the total shoreline. However, 11 of the 26 counties in the study area have less than one mile of foreign owned shoreland. Most of the foreign ownership is concentrated in Lake St. Clair, western Lake Erie, eastern Lake Erie, Bruce County on Lake Huron, and Leeds County on the St. Lawrence River. With the exception of Bruce County, the large concentrations of foreign ownership are close to the Canada/U.S. border[1].

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[1] Much of this information has been taken from Canada/Ontario Great Lakes Shore Damage Survey, Technical Report, Draft 3, Editor R. S. Boulden, produced by Environment Canada/Ministry of Natural Resources. Pages 84-87.

TABLE 1

PERCENT OF PUBLIC VERSUS PRIVATE OWNERSHIP BY COUNTY

COUNTY OR REGION	PUBLIC	PRIVATE
SIMCOE	19	81
GREY	29	71
BRUCE	22	78
HURON	8	92
LAMBTON	34	66
KENT (Lake St. Clair)	5	95
ESSEX	18	82
KENT (Lake Erie)	6	94
ELGIN	6	94
HALDIMAND-NORFOLK	14	86
NIAGARA	37	63
HAMILTON-WENTWORTH	41	59
HALTON	26	74
PEEL	49	51
METRO TORONTO	62	38
DURHAM	30	70
NORTHUMBERLAND	7	93
HASTINGS	50	50
PRINCE EDWARD	7	93
LENNOX & ADDINGTON	15	85
FRONTENAC	9	91
LEEDS	15	85
GRENVILLE	49	51
DUNDAS	85	15
STORMONT	97	3
GLENGARRY	2	98

From: R.S. Boulden, editor, Canada/Ontario Shore Damage Survey, Technical Report, Draft 3 Appendix 4.1.2a.

C. PRESENT LAND USE

Land use distribution presents an overall picture of the type and amount of development along the lower Great Lakes shoreline. The "Canada/Ontario Shore Damage Survey" obtained land use data from Ontario's regional assessment offices which are used in this description.

Land use is discussed only for the privately owned sections of the shoreline due to data availability.[1] However, as stated previously, 76 percent of the shoreline is privately owned. Land use was divided into the following categories: residential, agricultural, vacant, recreational, commercial/industrial and other.

At the present time much of the lower Great Lakes is devoted to residential use. In fact 41 percent of the private land use along the shore from Port Severn to the Quebec border is residential development. Agriculture is also a major land use as 28 percent of the private ownership of the area is devoted to this. Following closely is vacant or undeveloped land which includes 22 percent of the privately owned shoreline. Commercial and industrial uses comprise 4 percent, recreation use is 1 percent, and other uses total 4 percent of the privately owned land.

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1 R.S. Boulden, (ed.) Canada/Ontario Shore Damage Survey, Technical Report, Draft 3, Pages 81-84, Ministry of Natural Resources, Environment Canada 1975.

Lake Huron including Georgian Bay

Lake Huron's shoreland is predominantly residential and vacant land with 88 percent of the shore equally divided by these two uses. Agricultural use accounts for only 5 percent and commercial and industrial another 2 percent. Vacant land is concentrated on the shorelands of the northern section of the Bruce Peninsula.

Lake St. Clair Area

The Lake St. Clair area's predominant land use in terms of length of shoreline is residential (30 percent) with agriculture, recreation and vacant with 23, 16 and 13 percent respectively. Although this area represents only 6 percent of the total shoreland, it has 12 percent of the permanent residential shoreline, 16 percent of the commercial shoreline, and 8 percent of the industrial shoreline, which indicates a high degree of development.

Nearly all of the private recreational shoreland is located in Kent County on Lake St. Clair. These are the marshes which are owned by hunting clubs.

Lake Erie

On Lake Erie, the east and west portions of the shore are used primarily for seasonal and permanent residences. The central area is used mainly for agriculture. Elgin and

Haldimand-Norfolk counties contain 13 percent of the agricultural land in the study area. As a whole, 49 percent shoreland is used for residential and 27 percent of the shoreland for agriculture

Lake Ontario and the St. Lawrence River

Lake Ontario and the St. Lawrence River contains 81 percent of the industrial land and 69 percent of the agriculture land in the study area. Forty three percent of the shoreland is agricultural. This is concentrated in Frontenac, Lennox-Addington, and Leeds counties. Thirty-six percent of the lake is residential.

3. PARTICIPATION & PREFERENCES FOR RECREATION ACTIVITIES

Present recreation participation and preferences of Ontario residents are analysed for most of the activities stated in the terms of reference. There is no attempt to delineate where this participation is occurring. This analysis is based on the Ontario Recreation Survey (O.R.S.)[1].

The O.R.S. considered 73 recreation activities. To place this study's activities in perspective, Table 2 lists the percentage of all Ontario respondents who participated at least once in all the activities in the past twelve months. Swimming ranked first as 64.9 percent of the respondents participated. This includes swimming in natural environments and man made

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1. Ontario Recreation Survey, Ministry of Natural Resources (Tourism and Outdoor Recreation Planning Study Committee) Progress Report No. 2, September 1974.

pools. Fishing (angling) ranked ninth with 37.6 percent. Wildlife viewing which includes viewing birds, animals, and fish is twenty-fifth with 13.6 percent of the respondents participating. Sailing ranks forty-first with 6 percent of the respondents participating. Water hunting ranks forty-ninth with 3.8 percent of the respondents participating.

Swimming (including Bathing)

In Ontario 71 percent of the swimming activity is day use. Sixty percent of this takes place less than 20 miles from home.

The average annual per capita participation rate for swimming is 21.2 occasions in Southern Ontario. This does not vary significantly from region to region. Of the O.R.S. respondents who participated in swimming 25 percent would like to swim more often. Of the respondents who did not swim 11 percent would like to do it in the future. At present, swimming is the first ranked activity in which respondents would like to participate more, especially those between the ages of 20 and 59 years. Most respondents, however, stated that there was a lack of opportunities near their home.

Fishing (Angling)

At present 56.5 percent of angling participation is day use and 34 percent of this participation takes place within 20 miles from home.

In Southern Ontario the average annual participation rate per capita for fishing is 4.6 occasions. This varies slightly throughout the region with Metro Toronto having the lowest rate of 2.8 occasions per capita.

Of the respondents who fished, an average of 23 percent would like to more often. Of the respondents who did not fish an average of 5 percent would like to. The respondents in Metro Toronto were least interested in increasing angling participation.

Angling is ranked as the second most desired acitivity for more participation. However, the lack of opportunity is an unimportant reason for not angling as much as desired. Other considerations, such as the lack of time, are more important.

Motorboating

At present 47.2 percent of motorboating is a day use activity with 27 percent of this taking place within 20 minutes from home. Boating is more frequently a part of overnight, weekend or vacation trips. Therefore, boating is not as much a day use activity as swimming or angling.

At present the average per capita annual participation rate in motorboating is 5.0 occasions across Southern Ontario. Forty-six percent of the respondents stated that lack of opportunity in terms of accessibility and quality of facilities was the reason for not participating in motorboating more often. The major implication seems to

be that if facilities were increased there would be more boating participation, especially closer to home.

Sailing

At present the O.R.S. has not completed detailed participation information on sailing. However, for sailing the average annual participation rate is 0.2 occasions per capita in Southern Ontario. This does not vary significantly from region to region.

Wildlife Viewing

The O.R.S. did not consider wildlife waterfowl viewing as a separate activity. The viewing of fish, birds, and mammals was lumped into one category. This, however, is considered a proxy for wildlife waterfowl viewing. The average annual participation rate per capita is 1.9 occasions for all respondents in Southern Ontario.

Waterfowl Hunting

The sample size for waterfowl hunting from the O.R.S. was not large enough to analyse conclusively.

TABLE 2

PERCENT OF RESPONDENTS PARTICIPATING AT LEAST ONCE IN RECREATIONAL ACTIVITIES IN PAST 12 MONTHS

Activity	%	Activity	%
* Swimming	64.9	Ice Hockey	12.9
Recreational Driving	64.0	Tennis	12.2
Picnicking	58.1	Badminton	11.6
Attending Annually Scheduled Fair or Other Special Event	53.7	Other Boating	10.7
Recreational Walking	51.7	Basketball	10.5
Attending a Spectator Sport	50.9	View, Photograph or Collect Plants	10.2
Visiting Recreation Home	46.3	Waterskiing	9.9
Attending Live Theatre or Concert	38.5	Horseback Riding	9.6
* Fishing	37.6	Football	9.4
Visiting a Museum or Art Gallery	35.3	Volleyball	9.1
Visiting Zoo/ Botanical Garden	34.8	Small Game Hunting	8.9
Visiting a Developed Historic Site or Display	34.5	View, Photograph or Collect Rocks	8.7
* Motor Boating	33.1	Downhill Snowskiing	8.1
Ice Skating	30.6	Soccer	7.7
Recreational Bicycling	30.5	Going on a Guided Nature Tour	6.0
Visiting Other Nature Displays	29.9	* Sailing	6.0
Camping	27.6	Recreational Motorcycling	5.3
Hiking	21.9	Curling	5.3
Tobogganning or Sledding	21.0	Roller Skating	4.8
Baseball, Softball	19.5	Recreational Trail Biking	4.4
Recreational Snowmobiling	18.4	Snowshoeing	4.3
Alley Bowling	16.4	Big Game Hunting	4.2
Canoeing	16.2	Gymnastics	4.1
Golfing	13.9	* Waterfowl Hunting	3.8
* View or Photograph Birds, Animals or Fish	13.6	Track and Field	3.5
		Skin/Scuba Diving	3.1
		Handball	3.1
		Cross Country Skiing	2.7
		Strength Sports	2.2

From: Ministry of Natural Resources, Ontario Recreation Survey, Progress Report No. 2, Parliament Buildings, Toronto, September 1974, Page 24.

* Refers to the recreation activities related to this study.

II. NATURAL RESOURCE ANALYSES

1. RECREATION

A. RECREATION CAPABILITY

The classification of the shoreland according to its recreation capability is analysed in this section using the Canada Land Inventory (C.L.I.).

Recreational capability is the inherent ability of the land to attract and sustain continuous use assuming perfect market conditions, a common level of demand and accessibility, and a given level of management. Only those shoreline areas of high capability (Class 2) and very high capability (Class 1) for recreation are discussed because these are of the most interest for public recreation development.

The following is a summary by waterway unit along the lower Great Lakes shoreline. The figures used were compiled with the help of Environment Canada.

Georgian Bay

An extended area of outstanding capability for bathing and associated activities is located on the east side of Nottawasaga Bay. This strip from Wymbolwood Beach to Brock Beach, including Wasaga Beach, contains approximately 21 miles of shoreland of high and very high capability.

Isolated pockets of Class 1 beach are found to the east on the Tiny Peninsula at Thunder Beach and Sawlog Bay. To the west of Collingwood the capability is lower with only two small enclaves of very high capability beach located at Leith, near Owen Sound, and Dunks Bay.

Lake Huron

Although the west side of the Bruce Peninsula has only one small pocket of Class 2 shoreland, its base at Sauble Beach has a 5 mile stretch of very high capability for bathing. South of Sauble Beach to Kincardine there are scattered areas of Class 2 shoreland which total 6.38 miles. The area from Grand Bend to Kettle Point has an outstanding recreational area which is composed of 17.36 miles of high and very high capability shoreland for bathing and associated activities.

Approaching Sarnia there are three Class 2 shorelands totalling 4 miles in length which provide potential bathing opportunities.

In summary, of the 723.56 miles of the Lake Huron shoreline, 67.77 miles or 9.2 percent of the land is Class 2 or higher.

St. Clair River:

The entire 38.42 mile length of the St. Clair River does not include any area of high or very high capability.

Lake St. Clair:

Of the 131.91 mile shoreline of Lake St. Clair, 102.84 miles is of high or very high recreation capability. For analysis the lake is divided into three sections: 1) Walpole Island, 2) the east shore, and 3) the south shore.

Walpole Island has 78.70 miles of Class 2 shoreline which provides opportunity for wildlife hunting/viewing and angling opportunities.

The east shore does not have any lands of high capability.

The south shore of the lake has 24.14 miles of high capability for bathing of which 5.44 miles have complementary angling opportunities.

The Lake St. Clair shoreline's high capability provides opportunities for a diversity of activities including wildlife viewing/hunting, angling, and bathing.

Detroit River:

Of the 47.59 mile shoreline of the Detroit River only 2.13 miles have high capability for bathing and associated activities.

Lake Erie:

The Lake Erie shoreline, which is 369.40 miles long, contains 87.73 miles of shoreline of high or very high capability for recreation.

Lake Erie's western most sand spit, Point Pelee, has a total of 9.53 miles of shoreline with high or very high capability for bathing opportunities. To the east, the Wheatley area has 1.28 miles of shore with high capability.

The central sand spit of Lake Erie, Rondeau, has 6.85 miles of shore which afford very high capability for both bathing and angling opportunities.

Long Point, the eastern sand spit of the lake has 50.95 miles of Class 1 and 2 shore on both sides for bathing, wildlife viewing/hunting.

Between the Rondeau and Long Point sand spits there are only three locations that have high or very high capability for bathing. These areas, Port Stanley, Iroquois Beach Provincial Park and Clear Creek , total only 2.01 miles of shoreline.

From Long Point to Fort Erie there are scattered areas of Class 1 and 2 shoreline. Most of these are located on the east sides of the numerous bays. The one outstanding area is Crystal Beach which has very high capability for bathing.

Niagara River:

There is no high capability shoreland to support opportunities for the activities that this report is concerned with. The 34.15 mile shoreline with the steep walled gorges, famous waterfalls, and the many historic sites lends itself most particularly to viewing and picnicking opportunities.

Lake Ontario:

Of the 695.06 miles of shoreline only 8.94 miles of beach have very high capability for bathing, while 30.63 miles have a high capability for bathing. This is proportionately much less than Lakes Huron and Erie. This may be due partly to the fact that much of the Central Ontario Lakeshore Urban Complex area shoreline is unclassified because the C.L.I. did not class urban lands.

Almost two-thirds of the Class 1 and 2 beach for bathing is located in the Presquile area of Northumberland County (9.33 miles) and on the western shore of Prince Edward County (17.40 miles). In the Presquile area 6.90 miles of the high capability beach also offers complementary opportunities for wildlife viewing while the western shore of Prince Edward County has .65 miles of complementary family boating activity potential.

St. Lawrence River:

The St. Lawrence River has very little shoreline with high or very high capability for the activities stated in the terms of reference. Of the River's 429.37 miles of shoreline only .32 miles of the Grenville County shoreline has very high capability for bathing. There are scattered locations along the River, a total of 4.87 miles, which have high capability for bathing. Of this 4.87 miles, 3.71 miles have complementary high capability for family boating activities.

The two main areas of very high capability along the river edge are Upper Canada Village at Cornwall, and Old Fort Henry at Kingston. Although not relevant to this study they are important to note because of the large numbers of people they attract.

SUMMARY

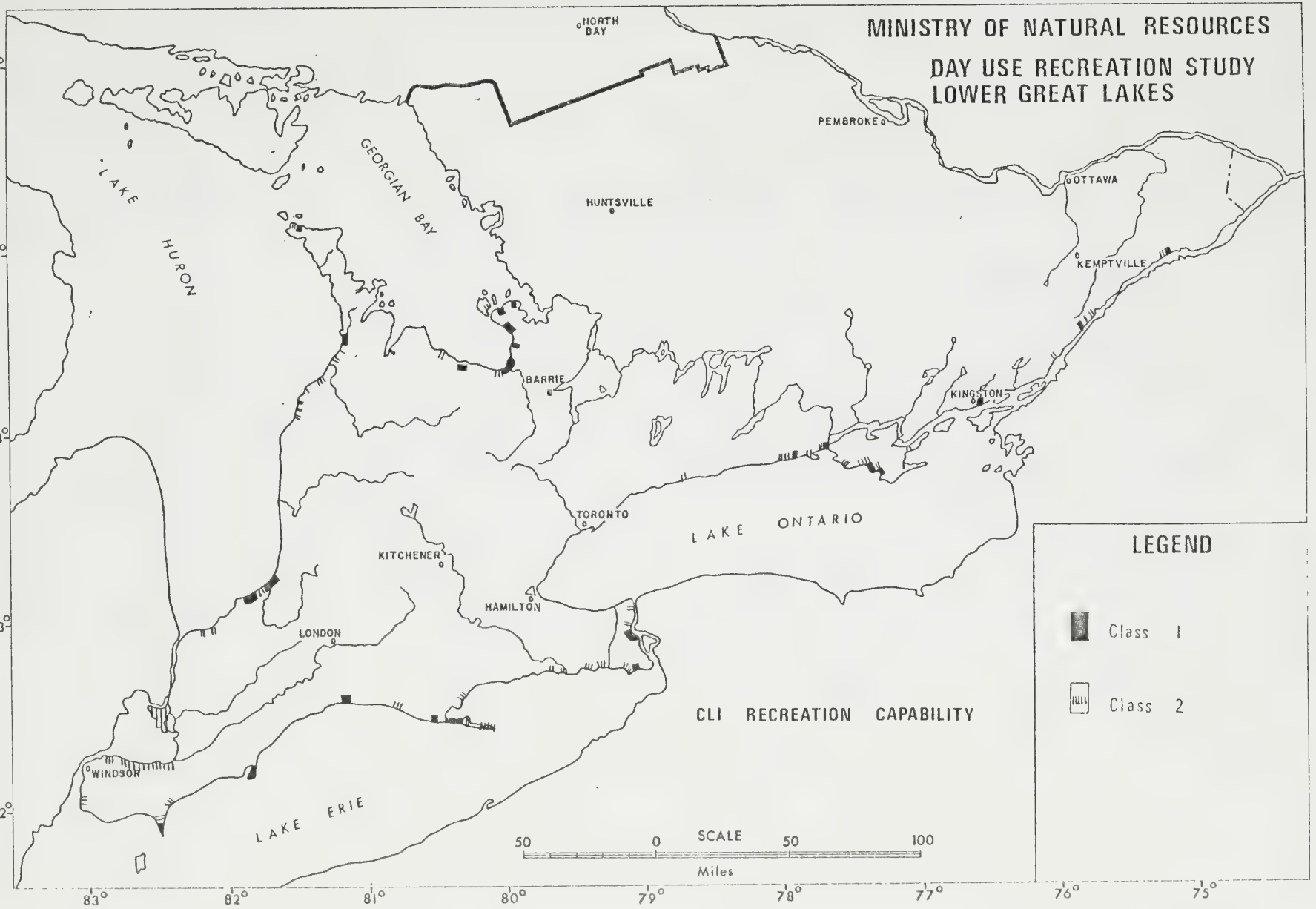
Of the study area's 2469.46 mile shoreline, a total of 296.73 miles of shoreline, or 12.01 percent, have high or very high recreational capability. (Refer to Table 3, and to Map 3).

TABLE 3

CLASS 1 AND 2 RECREATION CAPABILITY*
(in miles of shoreline)

Waterbody	Class 1 very high capability	Class 2 high capability	Class 1 + Class 2	Percent of Class 1 + Class 2 of Total Shoreline	Total Shoreline
Lake Huron (Georgian Bay Included)	40.40	27.82	68.22	9.4	723.56
St. Clair River	-	-	-	-	38.42
Lake St. Clair	-	102.84	102.84	78.	131.91
Detroit River	-	2.13	2.13	4.48	47.59
Lake Erie	25.95	61.78	87.73	23.75	369.40
Niagara River	-	-	-	-	34.15
Lake Ontario	8.94	21.69	30.63	4.26	695.06
St. Lawrence River	.32	4.86	5.18	1.21	429.37
TOTAL	75.61	221.12	296.73	12.01	2469.46

* Only the shore units that list bathing, family boating, angling, or wildlife are considered here.


MINISTRY OF NATURAL RESOURCES
DAY USE RECREATION STUDY
LOWER GREAT LAKES
NORTH BAY
PEMBROKE
OTTAWA
HUNTSVILLE
KEMPTVILLE
LAKE HURON
GEORGIAN BAY
BARRIE
KINGSTON
TORONTO
LAKE ONTARIO
KITCHENER
HAMILTON
LONDON
WINDSOR
LAKE ERIE
CLI RECREATION CAPABILITY
LEGEND
Class 1
Class 2
SCALE
50 0 50 100
Miles
46°
45°
44°
43°
42°
83°
82°
81°
80°
79°
78°
77°
76°
75°

MAP NUMBER 3

The outstanding areas of concentration are:

i) The east shore of Nottawasaga Bay

ii) Sauble Beach, Lake Huron

iii) Georgian Bay, Grand Bend to Kettle Point, Lake Huron

iv) Point Pelee, Lake Erie

v) Rondeau, Lake Erie

vi) Long Point, Lake Erie

vii) Presquile area, Lake Ontario

viii) The western shore of Prince Edward County, Lake Ontario

Other areas mentioned previously which have high capability for recreation, although smaller, are important to consider for day use recreation.

B. ANGLING CAPABILITY

The ability of the lower Great Lakes to attract and sustain angling is discussed. The waters of the shoreline have been classified into four classes:

i) very high,

ii) high,

iii) moderate, and

iv) low

These classes indicate the relative ability of the area to attract sport fishermen and of the fishery to sustain angling pressure.

The most outstanding areas of very high capability are located on: 1) the west side of the Bruce Peninsula, 2) the Lake St. Clair shore, 3) Long Point Bay, and 4) the Glengarry County shoreline.

The major areas of high capability are located at: 5) the north and east shores of Tiny Peninsula, 6) the south shore of Nottawasaga Bay, 7) the west side of the Bruce Peninsula, 8) most of Lake Huron south of Kincardine, 9) the St. Clair River, 10) the Detroit River and eastern basin of Lake Erie, and 11) the Leeds county shoreline. For locations of the above see numbers on Map 4.

Most of Lakes Erie and Ontario are of moderate capability. There are a few areas of low capability which are located on the north east shore of the Bruce Peninsula, the western end of Lake Ontario, and the central portion of the St. Lawrence River.

C. WATERFOWL CAPABILITY

The Great Lakes shoreline is analysed according to the C.L.I.[1], for its waterfowl capability. Only the first three waterfowl capability classes are discussed now as they provide the highest capability to produce waterfowl.

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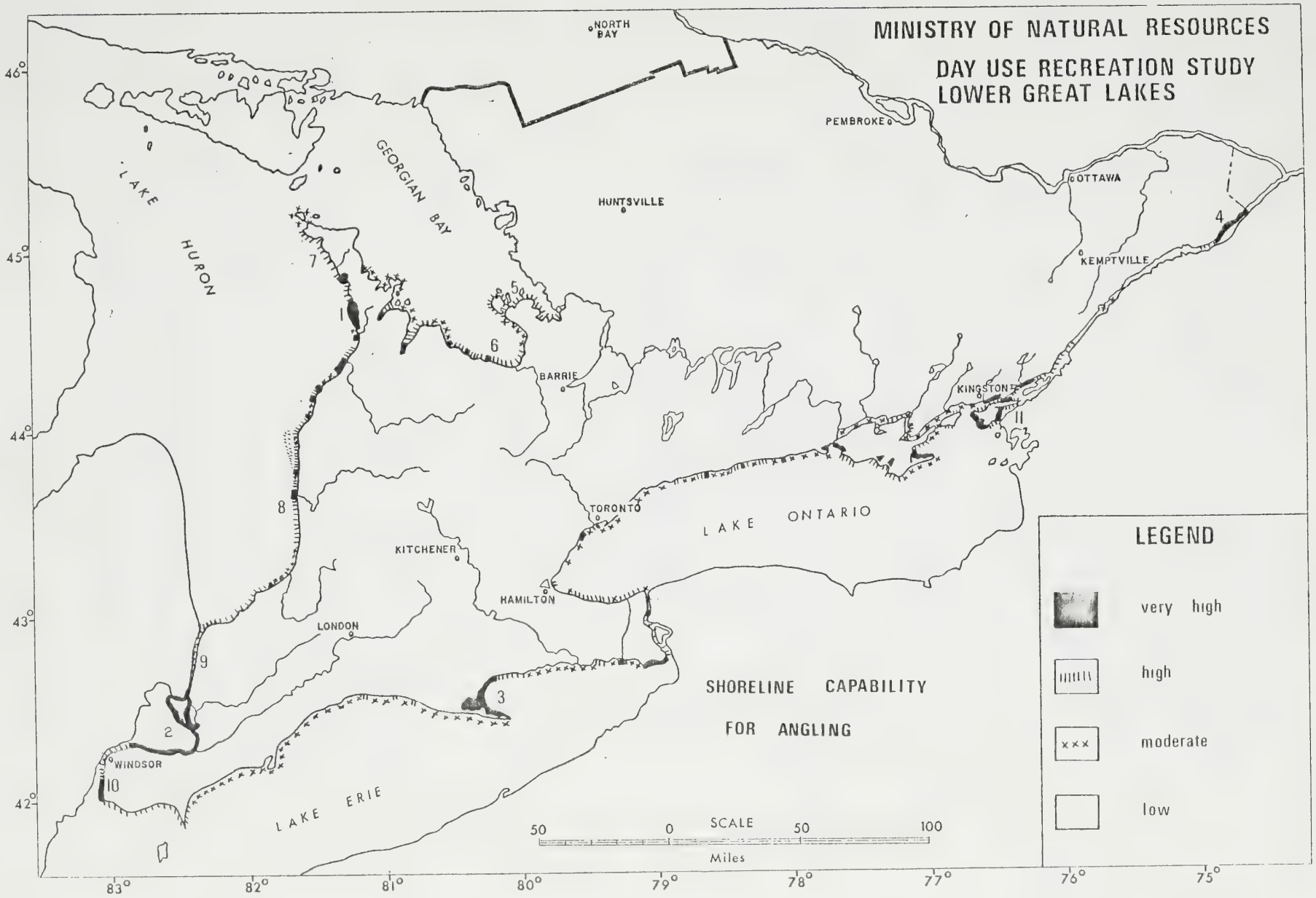
1 ARDA "Land Capability for Wildlife Waterfowl" Canada Land Inventory Survey Maps.


MINISTRY OF NATURAL RESOURCES
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BARRIE
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TORONTO
KITCHENER
HAMILTON
LONDON
WINDSOR
LAKE HURON
GEORGIAN BAY
LAKE ONTARIO
LAKE ERIE
SHORELINE CAPABILITY
FOR ANGLING
LEGEND
very high
high
moderate
low
SCALE
50 0 50 100
Miles
46°
45°
44°
43°
42°
83°
82°
81°
80°
79°
78°
77°
76°
75°

MAP NUMBER 4

Class 1 areas, that is lands with no significant limitations to the production of waterfowl, are located at:

1) the north and east shores of Lake St. Clair,
2) the Detroit River and associated marshes,
3) Wheatley area, and
4) the inner bay of Long Point.

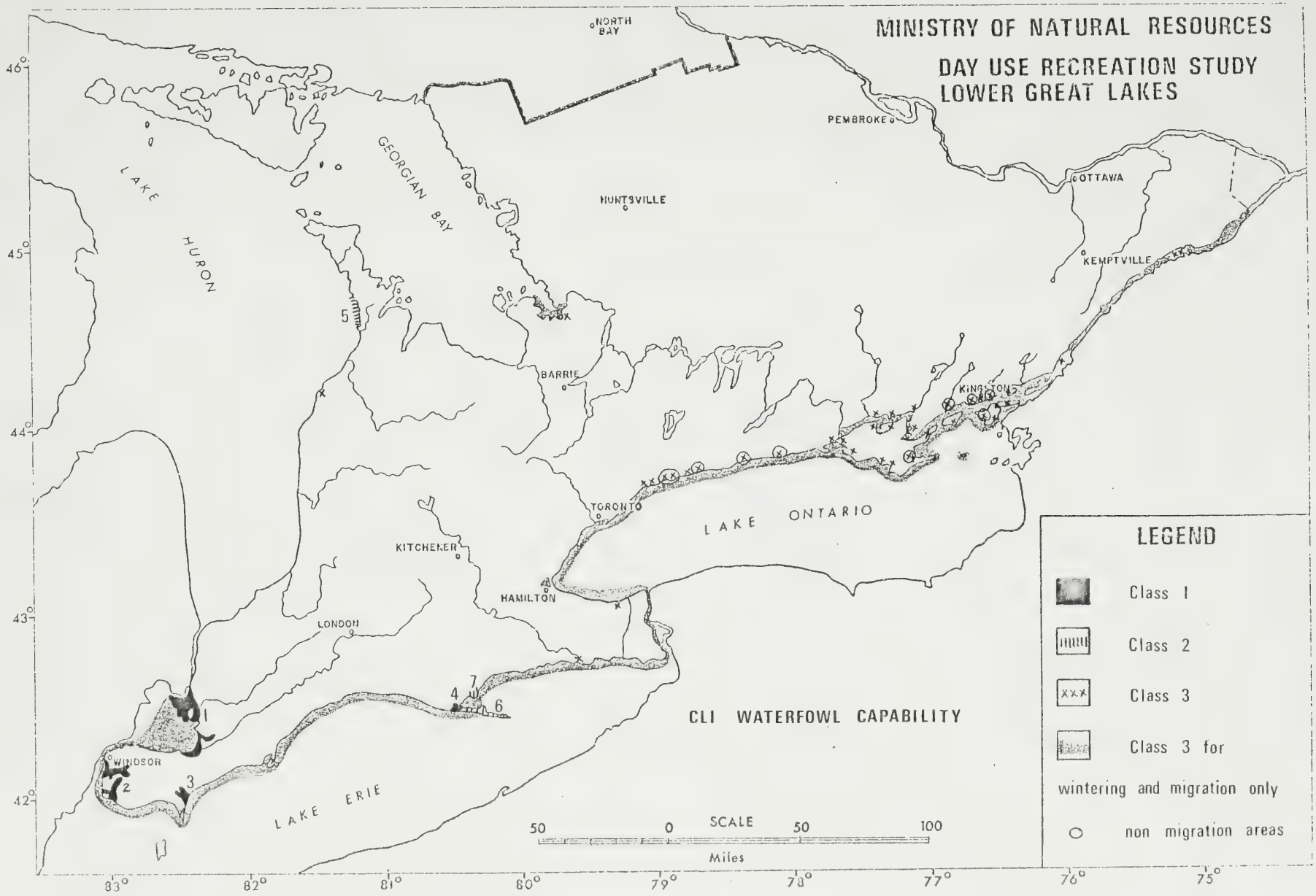
These areas of outstanding capability also serve as important migration stops.

The following areas are Class 2 which have very slight limitations to waterfowl production. They also serve as important migration stops.

5) the west side of the Bruce Peninsula between Little Pike Bay and Sauble Beach
6) Long Point, and
7) Turkey Point.

For locations of the above see the appropriate number on Map 5.

Class 3 lands have slight limitations to the production of waterfowl. These areas are scattered throughout the study area. Although the areas between Ajax and Gananoque do not serve as migration stops most the others do. Midland Bay and the previously not indicated areas from Sarnia to the Quebec border are not useful for waterfowl production but are important as migration or wintering areas.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LAKE HURON
KEMPTVILLE
BARRIE
KINGSTON
TORONTO
LAKE ONTARIO
KITCHENER
HAMILTON
LONDON
WINDSOR
LAKE ERIE
CLI WATERFOWL CAPABILITY
LEGEND
Class 1
Class 2
Class 3
Class 3 for wintering and migration only
non migration areas
SCALE
50 0 50 100
Miles
46°
45°
44°
43°
42°
83°
82°
81°
80°
79°
78°
77°
76°
75°

MAP NUMBER 5

D. BOATING CAPABILITY (DAY USE)

Day use boating capability is the ability of an area to attract and sustain day use boating. This refers especially to motor and sail craft under 21 feet in length.

The shoreline has been divided into three classes: high, moderate, and low. The requirements for high capability include:

i) protected waters,

ii) water quality compatible with boating use,

iii) interesting environment (the shoreline topography, and/or land use mixes are of high scenic quality),

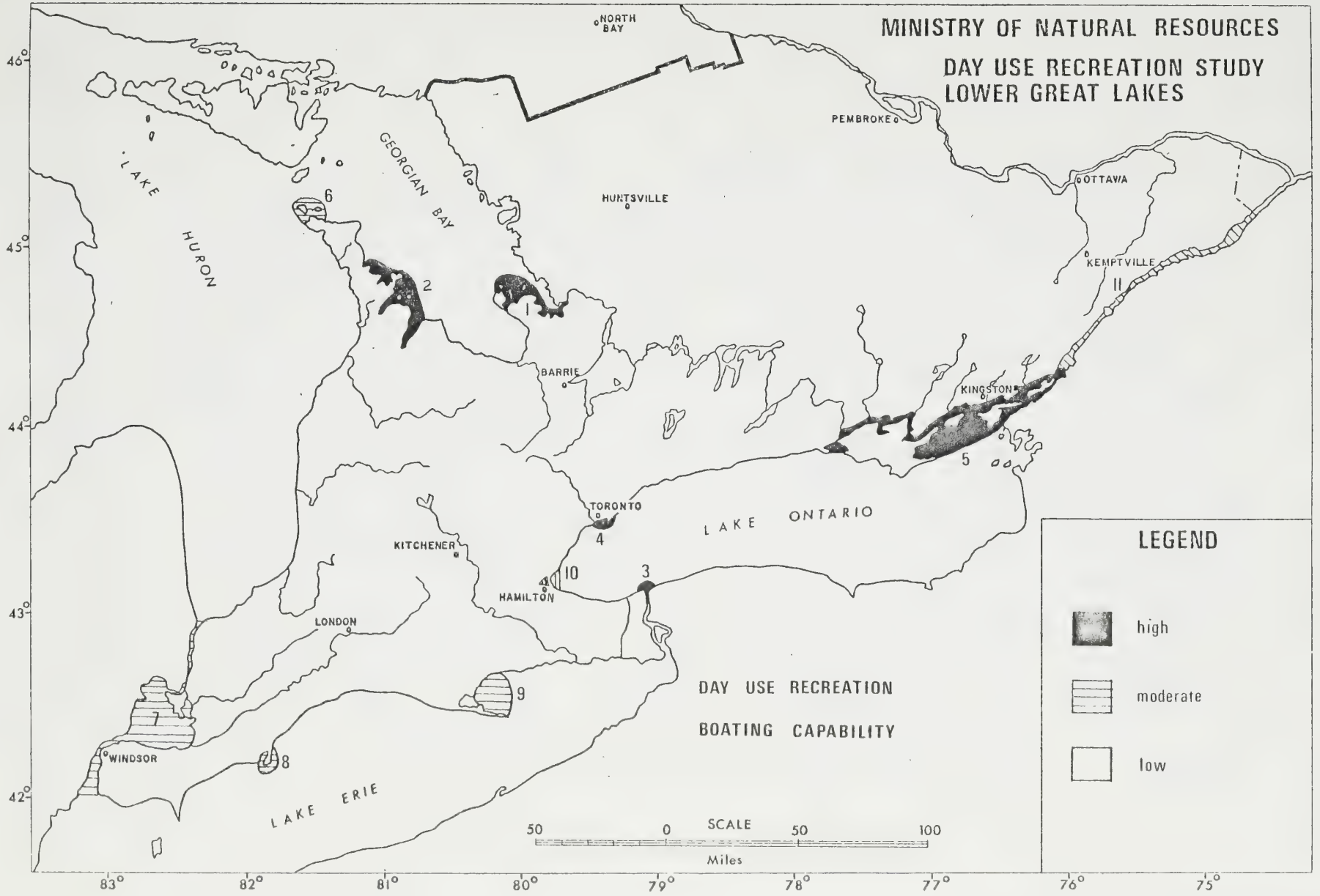
iv) deep water,

v) water body free from strong currents, and

vi) suitable access potential to and from the shore.

Moderate capability indicates a complete lack of one of the above requirements or a partial lack of two of the requirements.

Low capability exhibits a complete lack of two or more of the above requirements or a partial lack of three or more of the above requirements.


MINISTRY OF NATURAL RESOURCES
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10
11
DAY USE RECREATION
BOATING CAPABILITY
LEGEND
high
moderate
low
SCALE
50 0 50 100
Miles
46°
45°
44°
43°
42°
83°
82°
81°
80°
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76°
75°

MAP NUMBER 6

The five major areas of high capability for boating are located at: 1) Midland Bay, 2) the south east shore of the Bruce Peninsula, 3) Niagara-on-the-Lake, 4) the Metro Toronto waterfront, and 5) the Bay of Quinte and 1000 Islands area.

Areas of moderate capability are located at: 6) the tip of the Bruce Peninsula, 7) St. Clair River, Lake St. Clair, Detroit River area, 8) Rondeau Harbour area, 9) Long Point Bay area, 10) the Hamilton Harbour area, and 11) the St. Lawrence River east of the 1000 Islands. The numbers above correspond to numbered locations on Map 6.

The remainder of the shoreline is low capability.

e. WATER TEMPERATURE

Recreational bathing in the lower Great Lakes take place primarily in the summer months when water temperatures are comfortable for body contact. Water temperature must be at least 65° F (18° C)[1] before these water based activities can be considered pleasant. By early August maximum water temperatures are reached, permitting comfortable bathing along the entire stretch of the lower Great Lakes shoreline.

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1 Crowe, R.B., G.A. McKay and W.M. Baker, The Tourist and Outdoor Recreation Climate of Ontario, Volume One, Environment Canada, Toronto, 1973, Page 4.

Waters surrounding the Bruce Peninsula south to Meaford on the east side, and along the north shore of Lake Ontario from Toronto to Cobourg are generally the coldest, seldom reaching more than 69° F. The bathing season is also much shorter in these areas than the rest of the lower Great Lakes as water temperatures suitable for bathing are not reached until mid summer.

F. WATER QUALITY

The provincial[1] government has established a set of water quality guidelines for safe water based recreational activity. The water quality of the study area is discussed below:

Georgian Bay

The deeply indented and sheltered harbours of Midland Bay - Penetanguishene and Owen Sound have not maintained the exceptional water quality found elsewhere in Georgian Bay[2]. Luxuriously abundant growth of cladophora occur close to municipal and industrial sources in the

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1 Ministry of the Environment, 1974 Water Quality Criteria and Guidelines

2 Dave Hogt, District Biologist, Huronia District, Central Region, Ministry of Natural Resources, personal communication, October 1975.

Penetanguishene Harbour, posing an increasingly serious problem. Nutrient enrichment is extensive while phytoplankton levels are high enough to reduce water clarity and shed an unattractive soupy green appearance[1]. Periodically, both total and fecal coliform counts in Penetang Harbour exceed the criteria for body contact.

The inclusive area of Penetang, Midland, Port McNicholl and Waubaushene is subject to unattractive and malodourous areas of submergent and emergent weeds close to the shore. As a result boating and swimming activities are made considerably unpleasant and even hazardous by the thick weed growths.

An overloaded sewage treatment plant at Owen Sound causes raw sewage to enter the bay, contaminating the Kelso Beach recreation area for swimming.

Lake Huron

At Douglas Point, the Hydro generating station causes thermal pollution in excess of 11°C (50.8°F)[2]. Although seemingly favourable for bathing activities, the warm waters can be detrimental to important fish populations. Already,

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1 Wainio, A. and J. Rowsell, The Sport Fishery of Matchedash Sound, Ministry of Natural Resources, Maple, 1972.

2 Hurley, G. V., The Reproductive Success and Early Growth of Smallmouth Bass, Micropterus Dolomieu Lacepede, at Baie du D'ore, Lake Huron, Ontario, M.Sc. Thesis, University of Toronto, 1975.

fish spawning in Baie du D'ore has been interrupted due to the heated discharges. This will very likely hinder sport fishing activities in the area.

St. Clair River

Pollutants originating from Sarnia and its associated industrial complex generate odours so repugnant that people do not want to visit the eastern side of the main recreational areas, including Stag Island[1]. Also, coliform counts are high in the Sarnia - Pt. Edward area[2], with lesser counts occuring downstream locally correlated with waste effluents. This limits swimming activities in this area.

Historically the St. Clair River has been subjected to heavy mercury pollution, with serious contamination limiting fishing activities. Noticeable fish tainting occured along the river in the past, yet currently is not as prevalent, possibly due to greater dilution with high water levels[1]. This has limited the consumption of fish.

South of Sarnia, near Sombra, Ontario Hydro operates a generating station which poses a threat to fish spawning due to its thermal pollution.

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1 Dave Osmond, Chief of Water Resources Assessment, Ministry of the Environment, London, Ontario, personal communication, November 1975.

2 Caldwell, A.H. et al, The Erie Shoreline Study, University of Western Ontario, London, Ontario, September 1971.

Lake St. Clair

Large amounts of sediment being discharged from the St. Clair River have caused massive sedimentation in the naturally shallow (21') Lake St. Clair. Associated contaminants pour into and settle on the lake bottom, enriching the nutrient status of the lake. Resultant heavy weed and algal growth impedes boating and endangers swimmers because they may be caught in the weeds.

Mercury contamination has had a substantial impact on sport fishing activities in the lake because the fish should not be eaten in any quantity. Localized coliform problems occur near small shoreline municipalities where sewage treatment facilities are non-existent which is dangerous for swimming.

The Detroit River

Heavy industrial and municipal development borders both shores of the river making it one of the most highly polluted sections of the entire study area and the largest source of waste to Lake Erie[1]. Coliform counts are dangerously high throughout the system, particularly at Detroit, Windsor, Amherstburg and Fighting Island. In addition to this prohibitive safety factor, a treacherous

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1 Caldwell, A.J. et al, The Erie Shoreline Study, University of Western Ontario, London, Ontario, September 1971.

current churns the malodourous and discoloured river, making it unsuitable for swimming despite beach facilities[1].

Once a serious mercury polluter, the Wyandotte Chemical Company has since ceased dumping volumes of chemical into the river by rerouting waste into settling ponds. The danger now lies in a possible leakage from the ponds on Fighting Island and remains as a constant threat[2]. Until the mercury reaches an acceptable level, consumption of fish from this area has been discouraged.

Lake Erie

The average depth of Lake Erie is 60 feet. It is the shallowest major lake of the entire Great Lakes system yet receives the contaminants flowing from the most highly polluted section, the Detroit River. From this combination, the western basin of Lake Erie is now in a eutrophic state. The quality of water generally improves eastward to the Niagara River.

The only visual threat to the shoreline is thick masses of cladophora accumulation which specifically plague the eastern basin. Municipal and industrial outfalls create

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1 Dave Osmond, Chief of Water Resources Assessment, Ministry of the Environment, London, Ontario, personal communication, November 1975.

2 Caldwell, A.J. et al, The Erie Shoreline Study, University of Western Ontario, London, Ontario, September 1971.

site specific pollution problems, otherwise the shoreline water quality is adequate for recreation purposes.

Thermal discharges from the Nanticoke generating station along with municipal wastes from Ports Rowan and Dover stagnate in the sheltered waters of Long Point Bay. Further pollution in this area and efficient waste treatment plants have become topics of critical concern for waterfowl production and fishing following the Hydro Nanticoke development.

Niagara River

Similar to the Detroit River, the Niagara River is a major and concentrated source of pollution to the Great Lakes System, its primary threat being that of industrial and municipal overload. Major pollution is contributed by American industries[1]. Upstream from Niagara Falls, Buffalo discharges raw sewage. Coliform counts at the confluence of the Welland Canal and Lake Ontario are high[2] which presents problems for bathing.

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1 Mr. R.E. Craig, District Biologist, Niagara District, Central Region, Ministry of Natural Resources, personal communication, October 1975.

2 Ministry of the Environment, Great Lakes Water Quality Data '72, Niagara River, Lake Ontario, Bay of Quinte, St. Lawrence River, 1972.

Lake Ontario

Except for site specific areas where municipal and industrial discharges are high or where water flushing is inadequate, the general water quality of Lake Ontario is good for recreational purposes.

Cladophora is present along parts of the shore in thick accumulations which are especially predominant on the lake side of Prince Edward County. Decomposing cladophora can emit offensive odours up to a distance of one half mile, hence beach cleanups operate regularly through the summer[1], for the benefit of bathers and boaters.

In Hamilton Harbour, coliform and PCB counts are high, water is stagnant and unpleasant with a resultant decrease in recreational attraction in the area[2].

Oil accumulations at the mouth of Bronte and Oakville Creeks[3] are detrimental to boating, bathing and viewing

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1 Neil, J.H., Cladophora in the Great Lakes, prepared for the Standing Committee on Eutrophication, Great Lakes Research Advisory Board, International Joint Commission, December 1974.

2 The Halton - Wentworth Waterfront Study, V.1, Concepts for Waterfront Development, prepared by Acres Consulting Services Limited and Project Planning Associates Limited for the Waterfront Co-ordinating and Technical Committee, June 1974.

3 Howell, Doug, District Biologist, Cambridge District, Central Region, Ministry of Natural Resources, personal communication, October 1975.

while abnormally high PCB levels at Port Credit have shadowed the thrill of catching salmon from recent stocks. Alewife seasonally wash onto the shore in large smelly masses especially noticeable at Ontario Place. Sewage effluent in all major Toronto rivers create repugnant odours associated with widespread fish kill. Coliform levels from Bronte to Duffin Creeks approach the critical standard, with the exclusion of Bluffers Park[1].

The picturesque Bay of Quinte offers excellent facilities throughout its length for recreational enjoyment. However, many activities including bathing have been curtailed by unsatisfactory water quality due to the high phosphorus levels.

St. Lawrence River

Two major pollutants threaten the quality of the St. Lawrence River: aquatic weeds and oil spills. Aquatic weeds cause a constant source of complaint from permanent and seasonal residents[2], due to the impedement of boating, as well as the smell of rotting lumps washed ashore.

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1 Wainio, Al, District Biologist, Maple District, Central Region, Ministry of Natural Resources, personal communication, November 1975.

2 Baldwin, R., Fish and Wildlife Supervisor, Cornwall District, Eastern Region, Ministry of Natural Resources, October 1975.

In view of the proposed year round opening of the St. Lawrence Seaway, the danger of oil spills becomes an increasing concern along the river[1]. Important waterfowl wildlife habitats and sanctuaries could be irreplaceably damaged, while all other recreational activities present along the river could be impaired. Other pollution is local, including thermal discharges from the Bath generating station[1].

SUMMARY

The water quality along the shoreline of the lower Great Lakes poses little to no constraint for this study's recreational activities except for the site specific areas listed as follows:

1. Midland - Penetanguishene Harbour
2. Owen Sound local area
3. St. Clair River - Lake St. Clair - Detroil River system
4. Long Point Bay
5. Niagara River
6. Hamilton Harbour
7. Bay of Quinte
8. Individual point sources of industrial, municipal or thermal pollution

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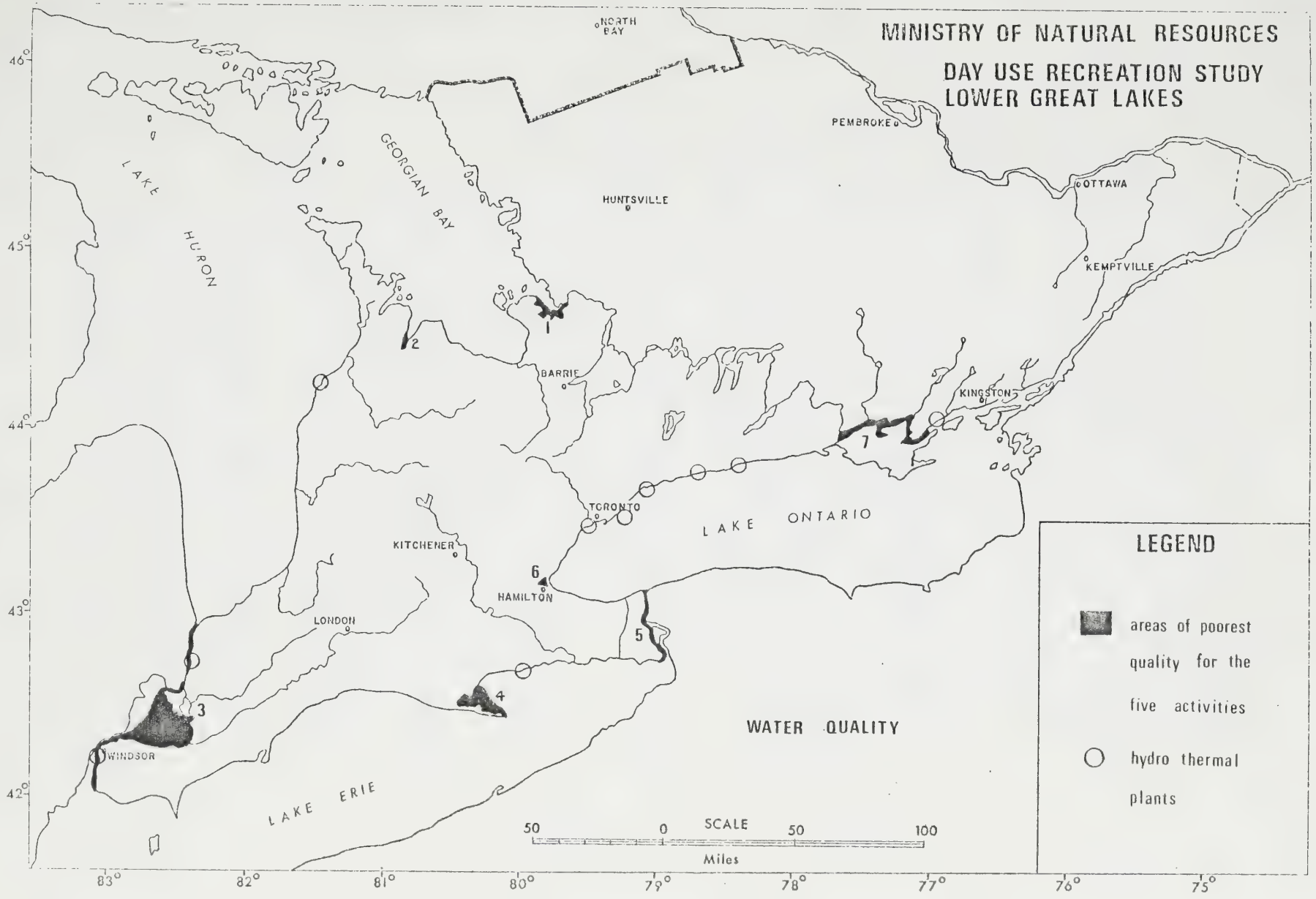
1 Raine, G., District Biologist, Brockville District, Eastern Region, Ministry of Natural Resources, October 1975.


MINISTRY OF NATURAL RESOURCES
DAY USE RECREATION STUDY
LOWER GREAT LAKES
NORTH BAY
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TORONTO
LAKE ONTARIO
KITCHENER
HAMILTON
LONDON
WINDSOR
LAKE ERIE
WATER QUALITY
LEGEND
areas of poorest quality for the five activities
hydro thermal plants
SCALE
50 0 50 100
Miles
46°
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MAP NUMBER 7

Periodic water quality problems along sections of the shoreline (e.g. oil spills, cladophora accumulations), do not have long term affects on the recreational capability of the shoreline. The aforementioned areas are indicated by number on Map 7.

2. AGRICULTURE CAPABILITY

The distribution of agriculture capability classes according to the C.L.I. is discussed in this section.

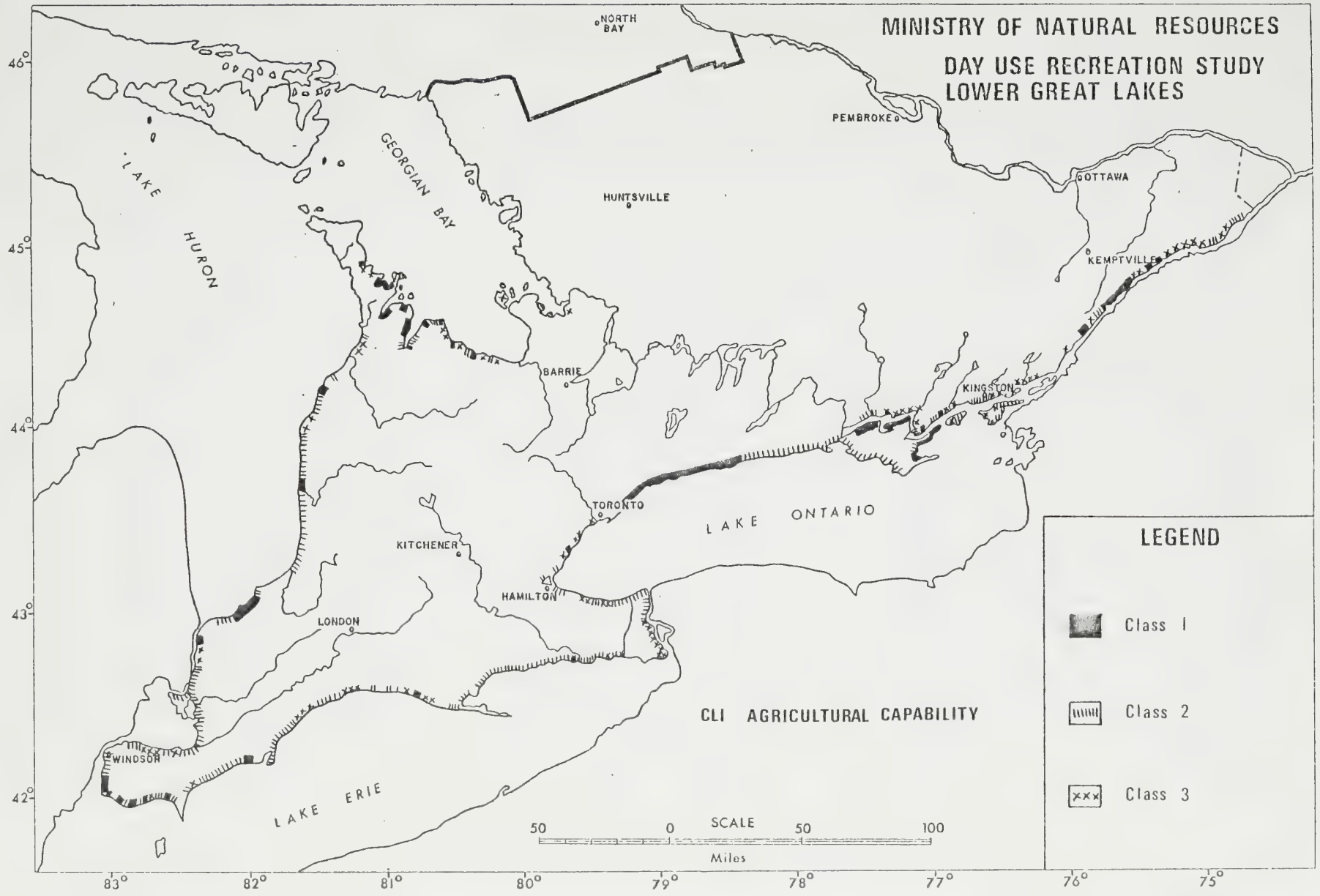
The agriculture capability of the study area is high with over 70 percent of the shoreline designated as Classes 3 or higher. This is illustrated on Map 8.

Class 1 land, that is land with no limitations for agriculture are concentrated along:

1. Glenville - Dundas shoreline.
2. The north and east shores of Prince Edward County,
3. Durham Regional Municipality shoreline, and
4. Scattered areas along Lakes Erie and Huron with a noticeable intensity between Hope Bay and Thornbury on Georgian Bay.

Class 2 land, which have moderate limitations, are mainly located along:

1. The west shore of Prince Edward County and the Northumberland County Shore,
2. The north shore of the Niagara Peninsula,
3. Most of the Lakes Erie and St. Clair shorelines, and
4. The Lake Huron shore from Grand Bend to Point Clark.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BARRIE
KINGSTON
TORONTO
LAKE ONTARIO
KITCHENER
HAMILTON
LONDON
WINDSOR
LAKE ERIE
CLI AGRICULTURAL CAPABILITY
LEGEND
Class 1
Class 2
Class 3
SCALE
50 0 50 100
Miles
46°
45°
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MAP NUMBER 8

Class 3 lands, which have moderately severe limitations are not concentrated within a particular area, but are scattered along the shoreline with less frequency than Class 2 areas. Within the study area Class 2 areas predominate.

Locations of Class 4 and lower capability are:

1. the west and north shores of Tiny Peninsula,
2. the west and north shores of the Bruce Peninsula,
3. the Lake Huron shore from Grand Bend to Kettle Point,
4. Long Point, and
5. the shore of Leeds County.

As the C.L.I. 1:250,000 scale of mapping has been used in this report, agriculture capability may not be accurate along the shoreline as beach formations are included in the soil classes. In some cases it would appear that a narrow strip of shoreland could well be low class agricultural capability in spite of the fact that the capability maps may show otherwise.

3. SENSITIVE AREAS

The Ministry of Natural Resources has identified sensitive areas in the province. These are unique, representative or threatened cultural or natural resources of significance, including those of physical, biological and historical importance[1].

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1 Ministry of Natural Resources, Sensitive Area Files, 1972.

The intent is to identify areas of preservational importance. The majority of information in this section has come from these Sensitive Area Files, supplemented by sensitive areas identified by the International Biological Program (IBP) and nature reserve candidates by this Ministry's Parks Branch. All sensitive areas important to this study are listed by township in Appendix 1.

Sensitive areas of outstanding significance at the provincial level of planning, which require careful management from day use recreation are:

1) Georgian Bay

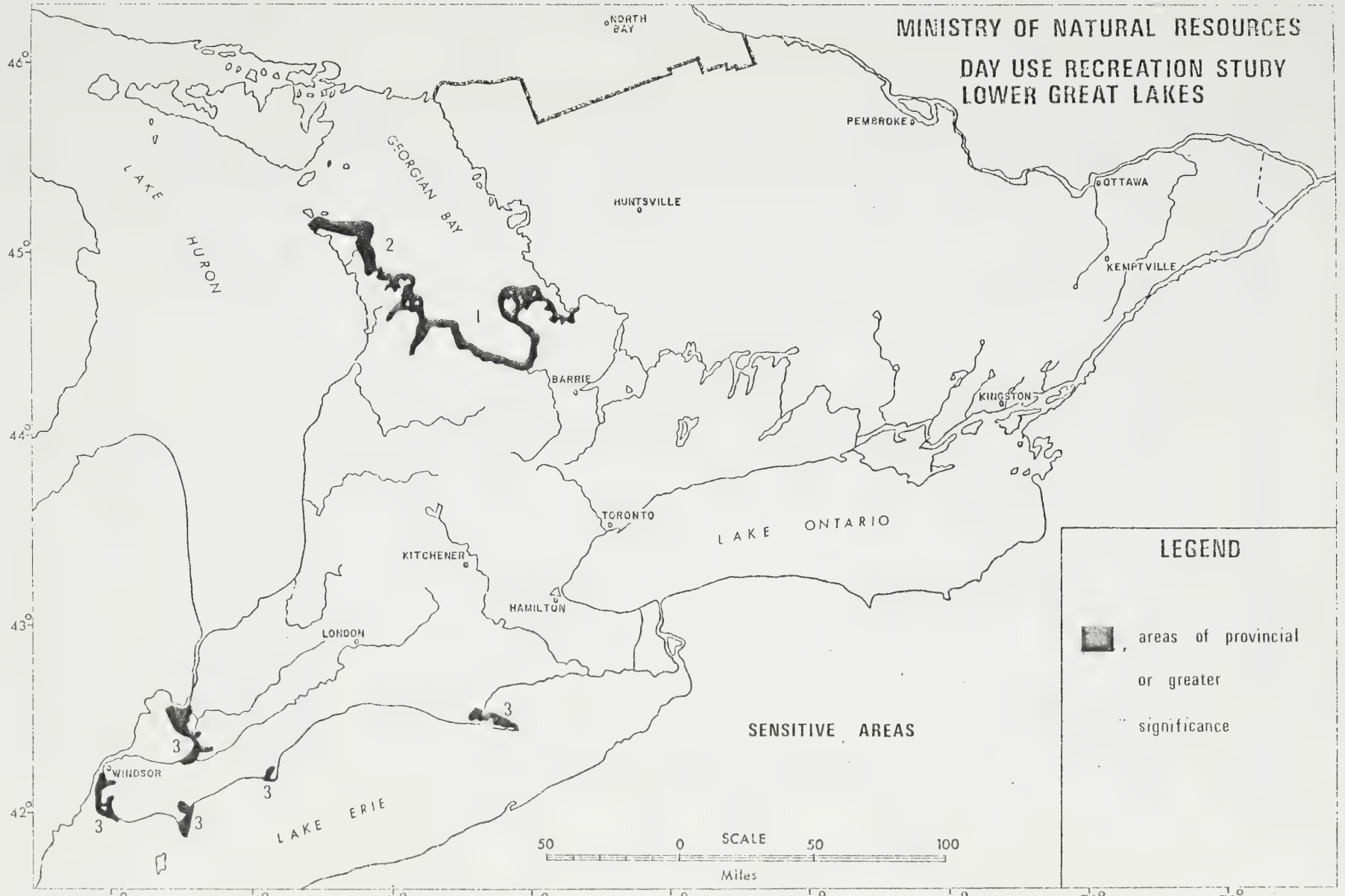
2) Parts of the Bruce Peninsula including the Niagara Escarpment

3) Major marsh areas of Lake St. Clair, Detroit River and Lake Erie, including Point Pelee, Rondeau and Long Point marshes.

These are shown on Map 9 and indicated by number.

Georgian Bay remains as one of the largest relatively unpolluted bodies of water in southern Ontario. While a great portion of the shoreline of this area is capable of attracting recreation use, further pollution from intensive use may lower the attractive quality of the area.

Along the east side of the Bruce Peninsula, from Wiarton to Tobermory the Niagara Escarpment is directly adjacent to the shoreline of Georgian Bay. Because the escarpment is a unique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75°

MAP NUMBER 9

geological feature to southern Ontario, it is here considered a major sensitive area.

Apart from the picturesque and formations characteristic to the limestone of the escarpment, various diverse and unique floral and faunal complexes are associated with the cliffs. Here the escarpment is capable of attracting recreational users but its sensitive environment cannot sustain intensive human impact. The large number and variety of sensitive areas for this area should be noted in Appendix 1.

Lake St. Clair, Detroit River and the Lake Erie Marshes of Point Pelee, Rondeau and Long Point are all considered major wildlife areas in southern Ontario. All of these areas are important for waterfowl staging production and migration, unique vegetation stands and significant song bird populations.

All these marshes listed above are located in popular recreation areas which are being subjected to increasing human activity. To protect these inhabitats, they are being considered as provincially sensitive areas in order to restrict further access for recreation.

In summary, the senstive areas designated to be as outstanding in the provincial context could well be threatened by indiscriminate development.

III. PRESENT SUPPLY OF DAY USE RECREATION OPPORTUNITIES

The Ontario Recreation Supply Inventory (ORSI) is an ongoing interministerial project to provide a comprehensive inventory of recreational facilities and resources within the province as well as estimates of the recreational opportunities that these facilities and resources provide. Map 10 shows the area covered by ORSI up to January, 1976.

The data available from the ORSI was used to provide an inventory of the recreational facilities available on the Great Lakes and as a data base for the supply allocation model.

The terms of reference for this study included five recreation activities: bathing, boating, angling, wildlife viewing and wildlife hunting. The ORSI does not have a complete inventory of wildlife hunting or viewing supply nor did it include details on angling supply. Therefore the ORSI could only provide an adequately detailed analysis of bathing and boating using the supply allocation model.

The supply Allocation Model[1] is a methodology developed to answer the question:

> How much supply for a particular recreational activity can be considered at the present time to be available to residents of different population centres in Southern Ontario?

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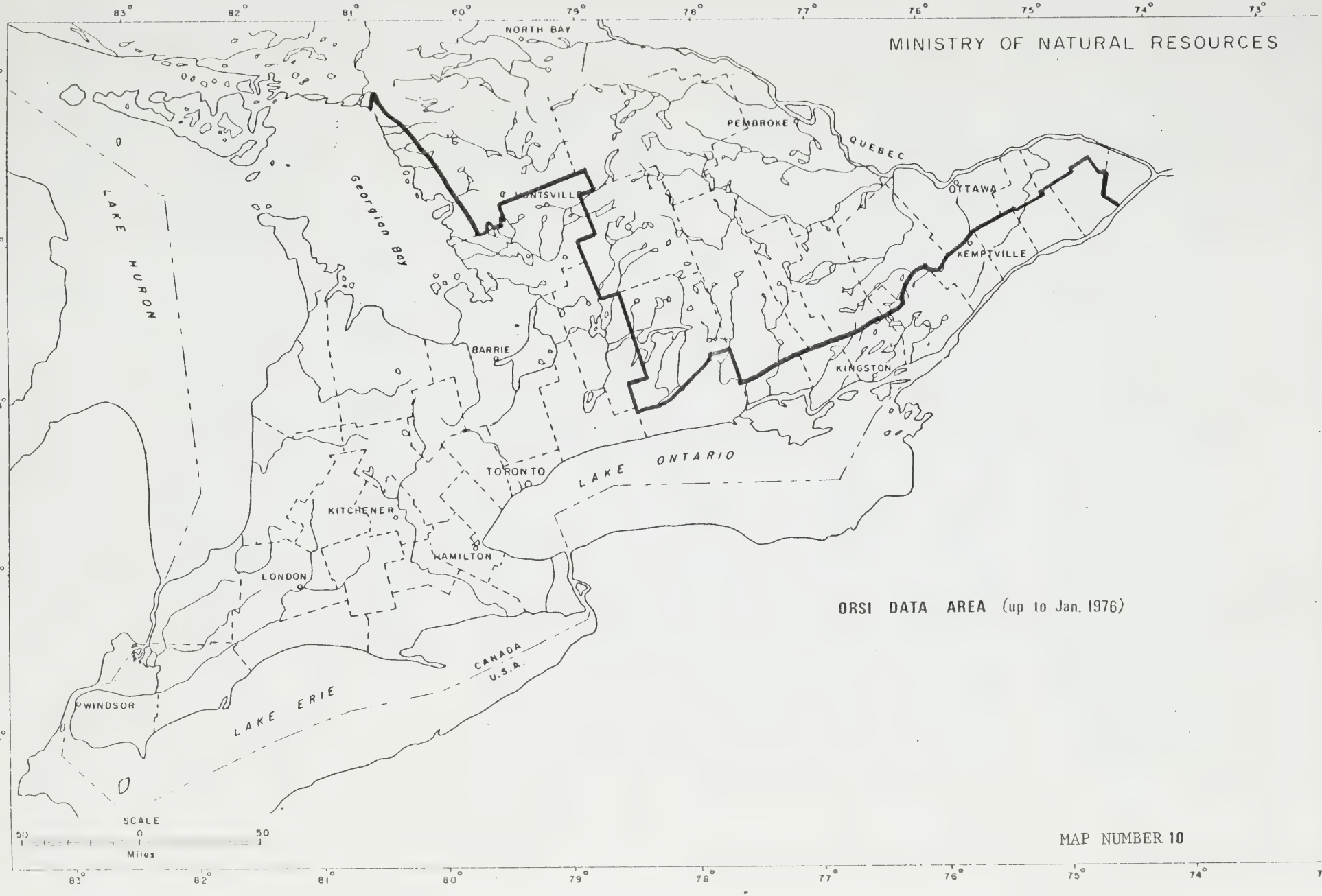
1 INFOR, Vol 12, No. 3, October 1974, Pages 231-243
Acar, William, A Method of Allocating Recreation Supply to Urban Centres


MINISTRY OF NATURAL RESOURCES
NORTH BAY
PEMBROKE
QUEBEC
OTTAWA
KEMPTVILLE
MONTSVILLE
Georgian Bay
LAKE HURON
BARRIE
KINGSTON
TORONTO
LAKE ONTARIO
KITCHENER
HAMILTON
LONDON
CANADA
U.S.A.
WINDSOR
LAKE ERIE
ORSI DATA AREA (up to Jan. 1976)
SCALE
50 0 50
Miles
MAP NUMBER 10

All supply is considered, whether it is on the Great Lakes or on smaller inland lakes. This means that the analysis implicitly assumes that the determination of relative requirements of different population centres for access to the Great Lakes should take into account the total supply, not just Great Lakes supply.

The answer to the above question, the amount of supply available to each population centre, is expressed in terms of number of opportunities per capita.

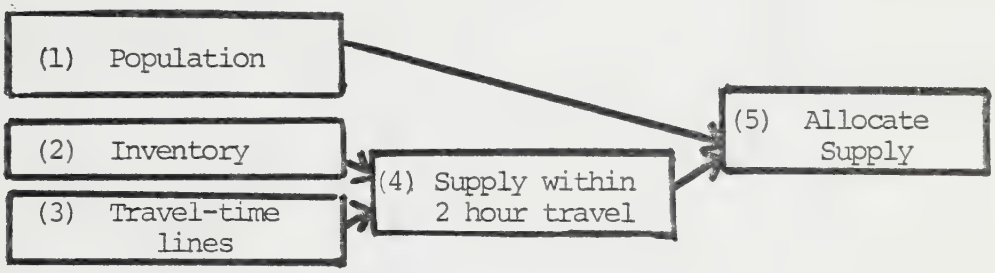
Data from the Ontario Recreation Survey (ORS), as well as other sources, clearly show that few people are willing to travel more than two hours for a day outing to a beach or to go boating or fishing. This means that only supply that is within two hours of a population centre can be considered available on a day-use basis to residents of that population centre. Drawing two-hour travel time lines around each population in Southern Ontario results, however, in a great deal of overlap or "competition". To take into account this overlap the Acar Recreational Supply Allocation Model has been used, thereby answering the question:

> How much supply can be considered at the present time to be available to each population centre?

The model has been run for Southern Ontario using 25 population centres and 156 recreation destination zones. The allocation has taken into account existing levels of use by non-residents, and a

"constraint mechanism" in the model has been used to limit the supply allocated to any population centre to an amount that its residents could conceivably use.

The steps involved in this analysis are shown in the following diagram:



1. Determine the population of each population centre

The twenty-five population centres, as well as the counties whose population[1] has been assigned to each population centre, are shown on Map 11.

2. Determine the supply for each activity by recreation destination zone

The 156 recreation destination zones are shown on Map 12.

Data on publicly available day use supply were obtained for five types of jurisdictions: federal, provincial, regional, municipal and private commercial. Federal includes National

---

1 Population statistics for 1976 were obtained from "Population Projections by Regions and Counties for years 1976, 1981, 1986, 1991, 2001" prepared by MTEIGA's Office of Economic Policy, Economic Analysis Branch, March 7, 1974.


MINISTRY OF NATURAL RESOURCES
NORTH BAY
PEMBROKE
QUEBEC
OTTAWA
CORNWALL
LAKE HURON
Georgian Bay
OWEN SOUND
BARRIE
PETERBOROUGH
BELLEVILLE
KINGSTON
OSHAWA
LAKE ONTARIO
BRAMPTON
TORONTO
GUELPH
STRATFORD
KITCHENER
OAKVILLE
HAMILTON
WOODSTOCK
BRANTFORD
NIAGARA FALLS
LONDON
SARNIA
GINCOE
ST. THOMAS
CHATHAM
WINDSOR
CANADA
U.S.A.
LAKE ERIE
SCALE
50 0 50
Miles
POPULATION CENTRES (25)
MAP NUMBER 11

RECREATION DESTINATION ZONES

IN SOUTHERN ONTARIO

MAP NUMBER 12

Parks and facilities associated with federal docks and canals. Provincial includes facilities provided by the St. Lawrence, Niagara and St. Clair Parks Commissions as well as Provincial Parks. Regional includes facilities at Conservation Authority areas. Private-private and institution facilities were considered not available for general public use.

The primary source of data for beaches, boat launching ramps and boat mooring facilities was the Ontario Recreation Supply Inventory. As indicated on Map 10 (following Page 43) however, ORSI data are not available for parts of Southern Ontario to the north and east of Muskoka, Victoria, Northumberland and Prince Edward Counties. For these areas not yet covered by ORSI, a variety of sources were used in an attempt to obtain data on number of boat ramps, number of boat mooring spaces and feet of beach, by jurisdiction type, for each recreation destination zone. These sources included:

(1)	federal	the 1968 Canada Outdoor Recreation Demand Study (CORDS) Facility Inventory which was updated in 1972 and the "Small Craft Harbours System Study" prepared by Kilborn Engineering for the Federal Department of the Environment.
(2)	provincial:	Provincial Park "policy statements", "1974 Ontario Provincial Parks Statistical Report" and the Parks Division inventory of designated Access Points.

(3)	regional:	Conservation Authority "Guide to Conservation Areas".
(4)	municipal and private commercial:	CORDS Facility Inventory, Ministry of Environment's inventory of marinas and Ministry of Industry and Tourism's "Ontario Boating" guidebook.

Except in the case of mooring facilities, which included yacht clubs, only facilities used primarily by the general public on a daily basis were included in the supply figures.

In order to express the inventory data in terms of opportunities (i.e. units which are comparable to units of participation) the supply calculation methodologies for beach activity and boating outlined in the ORSI Users Manual were used, except for:

1. bathing activity space standards reduced by 50%.
2. turnover rate for beach activity set equal to 1.2.

In the case of non-ORSI data for beaches (where only beach length and not beach width data were available) the space standard was set equal to 1.0 person per linear foot.

The supply data on numbers of boat mooring spaces, boat launching ramps and bathing opportunities are summarized in Tables 4, 5 and 6, respectively. These summaries are based on an aggregation of the 156 recreation destination zones into 15 geographical areas which approximate individual or grouped Ministry of Natural Resources districts, as shown on Map 13.


MINISTRY OF NATURAL RESOURCES
NORTH BAY
15 ALGONQUIN PARK
14 PARRY SOUND
11 PEMBROKE
QUEBEC
LAKE HURON
Georgian Bay
13 MUSKOKA
12 MINDENT BANCROFT
10 OTTAWA-LANARK
9 CORNWALL-BROCKVILLE
8 NAPANEE-TYEEP
3 WINGHAM-OWEN SOUND
6 HURONIA
7 LINDSAY
5 MAPLE
LAKE ONTARIO
4 CAMBRIDGE-NIAGARA
2 ALMER-SIMCOE
1 CHATHAM
CANADA
U.S.A.
LAKE ERIE
SCALE
50 0 50
Miles
GEOGRAPHICAL AREAS USED TO SUMMARIZE
THE 156 DESTINATION ZONES
MAP NUMBER 13

TABLE 4

BOATING: Number of Boat Mooring Spaces by Area in Southern Ontario*

	DISTRICTS**	Total Number of Mooring Spaces
1.	Chatham	4,881
2.	Aylmer-Simcoe	1,698
3.	Wingham-Owen Sound	2,004
4.	Cambridge-Niagara	1,977
5.	Maple	6,646
6.	Huronia	4,798
7.	Lindsay	3,970
8.	Napanee-Tweed	2,581
9.	Brockville-Cornwall	2,500
10.	Ottawa-Lanark	1,172
11.	Pembroke	205
12.	Minden-Bancroft	1,888
13.	Muskoka	4,679
14.	Parry Sound	2,129
15.	Algonquin Park	37
	REGIONS	
	Southwest	8,583
	Central	17,391
	Eastern	6,253
	Algonquin	8,938
	Total	41,165

* Boat mooring spaces include slip dockage and buoys

** with the exception of Muskoka and Parry Sound the districts correspond very closely to individual or grouped Ministry of Natural Resources districts.

TABLE 5

BOATING: Number of Boat Launching Ramps by Area in Southern Ontario

	DISTRICTS	Total Number of Ramps
1.	Chatham	97
2.	Aylmer-Simcoe	47
3.	Wingham-Owen Sound	167
4.	Cambridge-Niagara	76
5.	Maple	82
6.	Huronia	182
7.	Lindsay	173
8.	Napanee-Tweed	163
9.	Brockville-Cornwall	83
10.	Ottawa-Lanark	35
11.	Pembroke	34
12.	Minden-Bancroft	131
13.	Muskoka	176
14.	Parry Sound	215
15.	Algonquin Park	37
	REGIONS	
	Southwest	311
	Central	513
	Eastern	281
	Algonquin	593
	Total	1,698

TABLE 6

BATHING: Number of Bathing Opportunities by Area in Southern Ontario

	DISTRICTS*	Total Number (In Thousands of) Beach Opportunities
1.	Chatham	1,629
2.	Aylmer-Simcoe	1,397
3.	Wingham-Owen Sound	4,297
4.	Cambridge-Niagara	3,414
5.	Maple	2,669
6.	Huronia	4,114
7.	Lindsay	484
8.	Napanee-Tweed	1,508
9.	Brockville-Cornwall	386
10.	Ottawa-Lanark	130
11.	Pembroke	143
12.	Minden-Bancroft	165
13.	Muskoka	90
14.	Parry Sound	76
15.	Algonquin Park	106
	REGIONS	
	Southwest	7,323
	Central	10,680
	Eastern	2,024
	Algonquin	580
	Total	20,607

* with the exception of Muskoka and Parry Sound the districts correspond very closely to individual or grouped Ministry of Natural Resources districts.

The summary tables 4, 5, and 6 indicate for the 15 areas, the four Ministry of Natural Resources Regions and all of Southern Ontario, the total amount of supply for boat mooring spaces, boat launching ramps, and number of bathing opportunities.

3. Draw the two-hour travel-time lines around each of the 25 population centres.

4. Determine the amount of supply within the two-hour travel-time line of each population centre.

5. Allocate supply.

The allocation model allocates a specified proportion of the supply of each recreation destination zone to non-residents (i.e. users from outside Southern Ontario). The proportion of supply allocated to non-residents is indicated on Map 14. These data are based on Provincial Park statistics on origin of users, as well as modicum of judgment.

This allocation of supply to non-residents is done in order to more accurately represent the amount of supply which is actually available to residents. For example, inflow of recreationists from the U.S. and Quebec are very significant in the Essex, Lambton, Niagara and Cornwall areas, so that residents of these areas have considerably less supply effectively available to them than might appear to be the case when looking at total supply. (The availability of supply outside Southern Ontario, and the resulting outflow of recreationists are dealt with later.)

MAP NUMBER 14

After having allocated supply to non-residents, the allocation model allocates the remaining supply of a particular recreation destination zone to population centres that are within two hour travel-time by taking into account:

- the population of each population centre
- the travel time between the recreation destination zone and each population centre
- the amount of supply which has already been allocated to each population centre from other recreation destination zones.

RESULTS

1) Boat Launch Ramps

Table 7, as well as those that follow for boat mooring facilities and beaches, describe allocation model results from runs using 1976 population and supply figures.

The population centres are ranked from most poorly to best supplied (on a per capita basis).

In order to give a more realistic picture of the amount of supply that is actually available to residents of different population centres it is necessary to take into account opportunities outside Southern Ontario. Assumptions have therefore been made as to the proportion of each population centre's present supply that is being provided in Southern Ontario. The assumed values have been based on Ontario Recreation Survey data on proportion of day use participation by residents of different

TABLE 7

Boating Opportunities (Provided by Launch Ramps)
Per Capita, 1976

DISTRICTS	Opportunities Per Capita	Rank (least supplied to most supplied)
1. Windsor	0.37 (0.39)*	8
2. Chatham	0.61	15
3. Sarnia	0.55 (0.57)	14
4. London	0.20	1
5. St. Thomas	0.47	10
6. Woodstock	0.44	9
7. Stratford	0.99	18
8. Owen Sound	2.96	24
9. Guelph	0.52	13
10. Kitchener	0.28	4
11. Brantford	0.34	7 (6)
12. Simcoe	0.64	16
13. Niagara	0.21 (0.21)	2
14. Hamilton	0.21	2
15. Oakville	0.47	10
16. Brampton	0.48	12
17. Toronto	0.33	6 (5)
18. Barrie	2.96	24
19. Oshawa	1.41	19
20. Peterborough	2.96	24
21. Belleville	2.12	22
22. Kingston	1.65 (1.74)	20
23. Cornwall	0.69	17
24. Ottawa	0.30 (0.38)	5 (7)
25. Pembroke	1.65 (1.74)	20
Average	0.74	

* Figures in brackets are revised based on percentage of residents' day use participation outside Southern Ontario (Windsor, Sarnia = 4%; Niagara = 2%; Ottawa = 20%; Kingston, Cornwall, Pembroke = 5%)

population centres that occurs outside Southern Ontario. The values are used to calculate a revised set of supply per capita figures, as illistrated in the following example:

> If it is assumed that 20% of Ottawa's present day use supply is in Quebec, then the initial supply per capita figure of 0.30 for Ottawa represents 80 percent of the supply available to Ottawa. 100 percent of this supply therefore equals
>
> 0.30 opportunities/capita ÷ 80 percent = 0.38

The revised supply per capita values are shown in brackets in Table 7 . These revisions result in some changes in the ranking of population centres, and these revised rankings are also shown in brackets.

The lowest supplied centres are: London, Niagara and Hamilton, followed closely by: Kitchener, Toronto, Brantford, Ottawa and Windsor.

2) Boat Mooring Facilities

Table 8 is similar to Table 7 except that only two sets of supply figures were used in running the allocation model for boat mooring:

(a) total publicly available supply (i.e. including federal, provincial, regional, municipal, and private commercial jurisdictions).

(b) total supply, including not only all publicly available supply, but also that provided by yacht clubs for their members.

TABLE 8

Boating Opportunities (Provided by Mooring Facilities)
Per Capita, 1976

District	Total Publicly Available Opportunities Per Capita	Rank (least supplied to most supplied)	Total Including Yacht Clubs Opportunities Per Capita	Rank (least supplied to most supplied)
Windsor	0.67 (0.70)*	16	0.75 (0.78)	15
Chatham	0.87	17	0.95	17
Sarnia	1.05 (1.09)	19	1.25 (1.30)	19
London	0.26	3 (2)	0.32	3 (2)
St. Thomas	0.55	12	0.64	11
Woodstock	0.42	8	0.48	7
Stratford	0.62	14	0.68	13 (12)
Owen Sound	1.57	22	1.83	21
Guelph	0.30	6 (5)	0.42	6
Kitchener	0.19	1	0.25	1
Brantford	0.44	9	0.55	10
Simcoe	0.88	18	0.99	18
Niagara	0.28 (0.29)	5 (4)	0.37 (0.38)	4 (5)
Hamilton	0.26	3 (2)	0.37	4
Oakville	0.61	13	0.84	16
Brampton	0.52	11	0.72	14
Toronto	0.36	7	0.54	9
Barrie	2.58	24	6.02	24
Oshawa	1.32	21	5.33	23
Peterborough	2.58	24	6.02	24
Belleville	1.16	20	1.65	20
Kingston	1.62 (1.71)	23	1.84 (1.94)	22
Cornwall	0.63 (0.66)	15	0.66 (0.69)	12 (13)
Ottawa	0.26 (0.33)	3 (6)	0.27 (0.34)	2 (3)
Pembroke	0.44 (0.46)	9 (10)	0.50 (0.53)	8
Average	0.65		1.10	

* Figures in brackets are revised based on percentage of residents' day use participation outside Southern Ontario (Windsor, Sarnia = 4%; Niagara = 2%; Ottawa = 20%; Kingston, Cornwall, Pembroke = 5%).

On the basis of the latter set of supply figures, after revisions to take into account opportunities outside of Southern Ontario, the lowest supply centres are: Kitchener, London, and Ottawa, followed closely by: Hamilton, Niagara and Guelph.

3) Bathing Opportunities

Table 9 is similar to Table 7. After revisions to take into account bathing opportunities outside of Southern Ontario, the least supplied are: Ottawa, Toronto and Cornwall, followed closely by: Pembroke, Windsor, Kingston, London, Niagara and Hamilton.

TABLE 9

Bathing Opportunities Per Capita, 1976

Districts	Opportunities Per Capita	Rank
Windsor	1.6 (1.7)*	5
Chatham	2.4	10
Sarnia	2.9 (3.0)	14 (15)
London	2.0	7
St. Thomas	4.5	20
Woodstock	3.2	17
Stratford	10.3	24
Owen Sound	10.3	24
Guelph	3.3	18
Kitchener	3.7	19
Brantford	3.1	16
Simcoe	4.8	21
Niagara	2.1 (2.1)	8
Hamilton	2.2	9
Oakville	2.7	13
Brampton	2.4	10
Toronto	1.2	2
Barrie	8.2	23
Oshawa	2.9	14
Peterborough	2.5	12
Belleville	5.3	22
Kingston	1.7 (1.8)	6
Cornwall	1.3 (1.4)	3
Ottawa	0.3 (0.4)	1
Pembroke	1.5 (1.6)	4
Average	2.4	

* Figures in brackets are revised on percentage of residents' day use participation outside Southern Ontario (Windsor, Sarnia = 4%; Niagara = 2%; Ottawa = 20%; Kingston, Cornwall, Pembroke = 5%).

IV. OTHER CONSIDERATIONS

1. OPEN SPACE

Open space is considered to be any land with relatively few structures or buildings. For this study, major open space areas along the shoreline have been identified to indicate land areas that could be made available for recreation access.

The data was obtained from the land use section of the 1973 Shore Damage Survey maps produced by the Canada Centre for Inland Waters (C.C.I.W.), and includes land classed as recreation, wildlife habitat, agricultural or undeveloped, (Map 15). With the exclusion of the Niagara River, these maps cover the area from Port Severn to Gananoque. Open space information for the Niagara River was obtained from the Niagara Regional Assessment Office in St. Catharines.

Along the shoreline there are six major areas of open space:

1) Large scattered areas along Nottawasago Bay, including Tiny Peninsula and the islands north of Christian Channel.

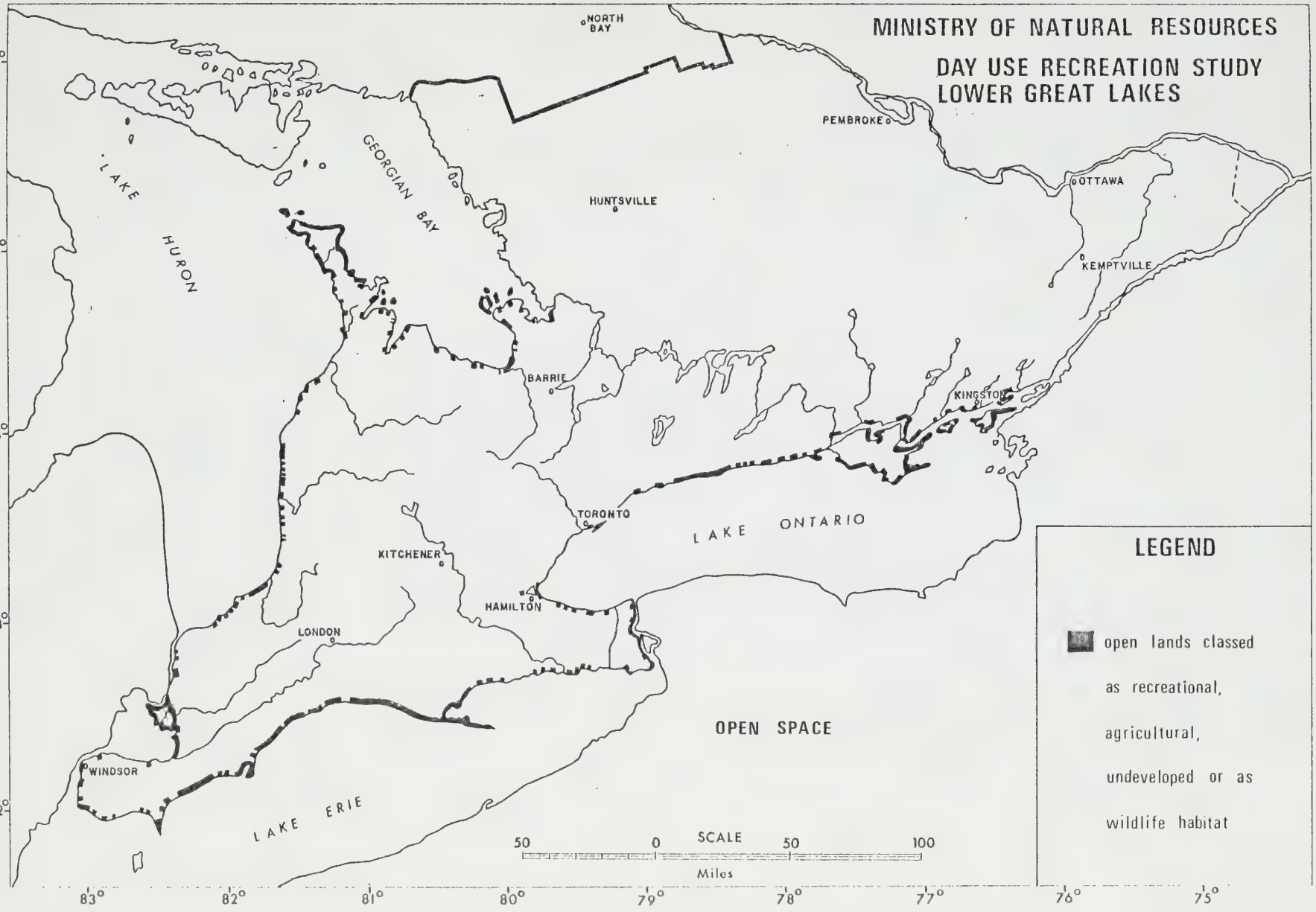
2) The Bruce Peninsula from Hope Bay on the east side to Myles Bay on the west side.

3) Scattered areas from Clark Point south to Harris Point (approximately 10 miles east of Sarnia)

4) The east shores of Lake St. Clair including Walpole Island.

5) The north shore of Lake Erie from Wheatley to Port Dover

6) The north and eastern shore of Lake Ontario from Oshawa to Gananoque, including Prince Edward County



MAP NUMBER 15

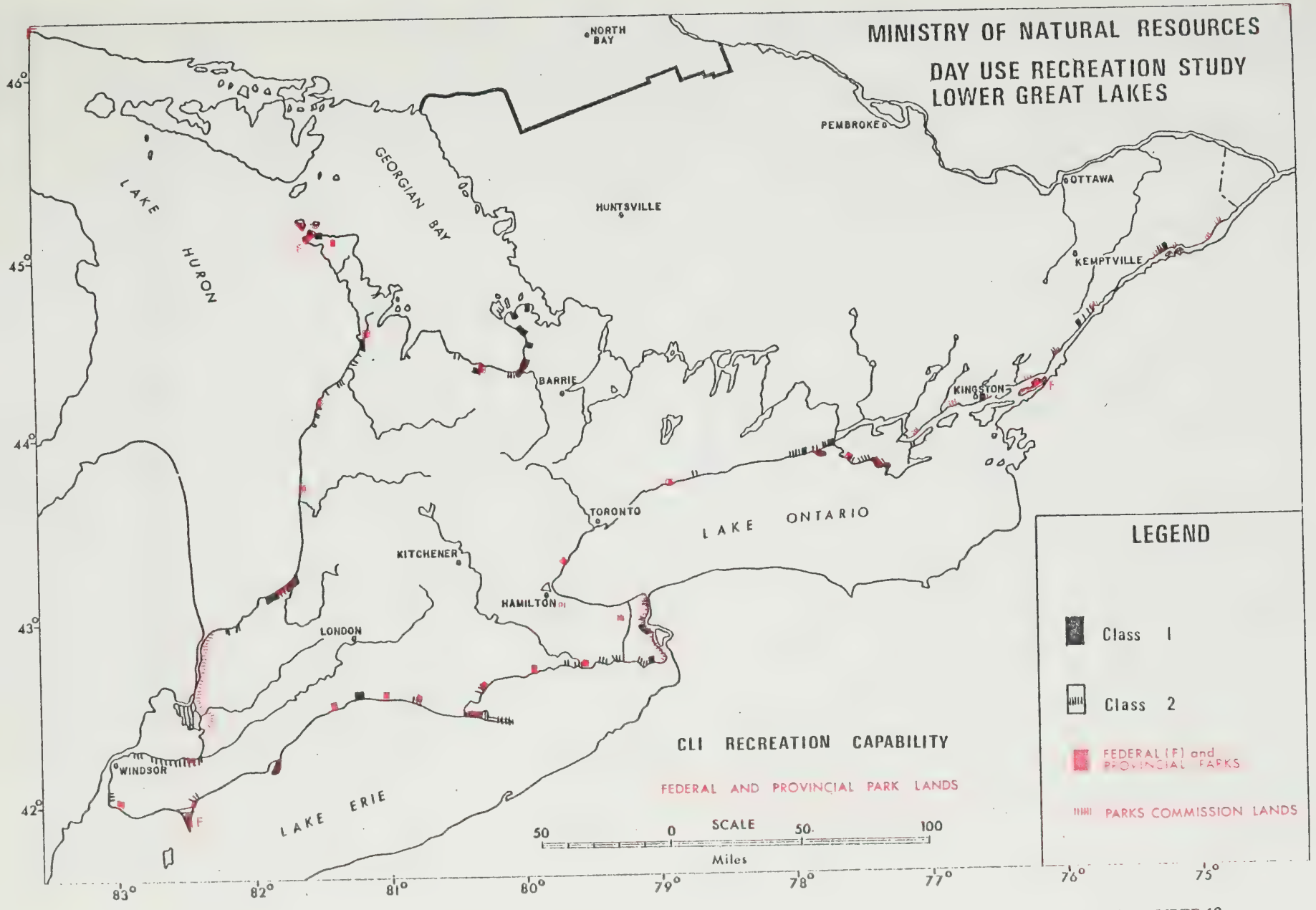
2. FEDERAL & PROVINCIAL PARKS COMPARED WITH PRIME RECREATION LAND

Major public parks along the shoreline are National Parks, Provincial Parks and the parks of the St. Clair, Niagara and St. Lawrence Park Commissions. Within the boundaries of these parks a total of 43.90 miles of Class 1 recreational land, and 29.30 miles of Class 2 recreational land are along their shorelines. (See Map 16). These figures include all recreational sub-classes outlined by the C.L.I. When considering only the sub-classes, bathing, family boating, wildlife or angling, with which this study is concerned, park lands encompass 43.90 miles of Class 1 land and 24.9 miles of Class 2 land.

As mentioned in a previous chapter, the total amount of Class 1 and 2 recreational land along the shoreline for sub-classes bathing, family boating, wildlife or angling is 75.61 miles and 221.12 miles respectively, or a combined total of 296.73 miles. Twenty-three percent of this Class 1 and 2 land is held in major public park land, therefore 77 percent of the prime recreation land is under some other type of ownership.

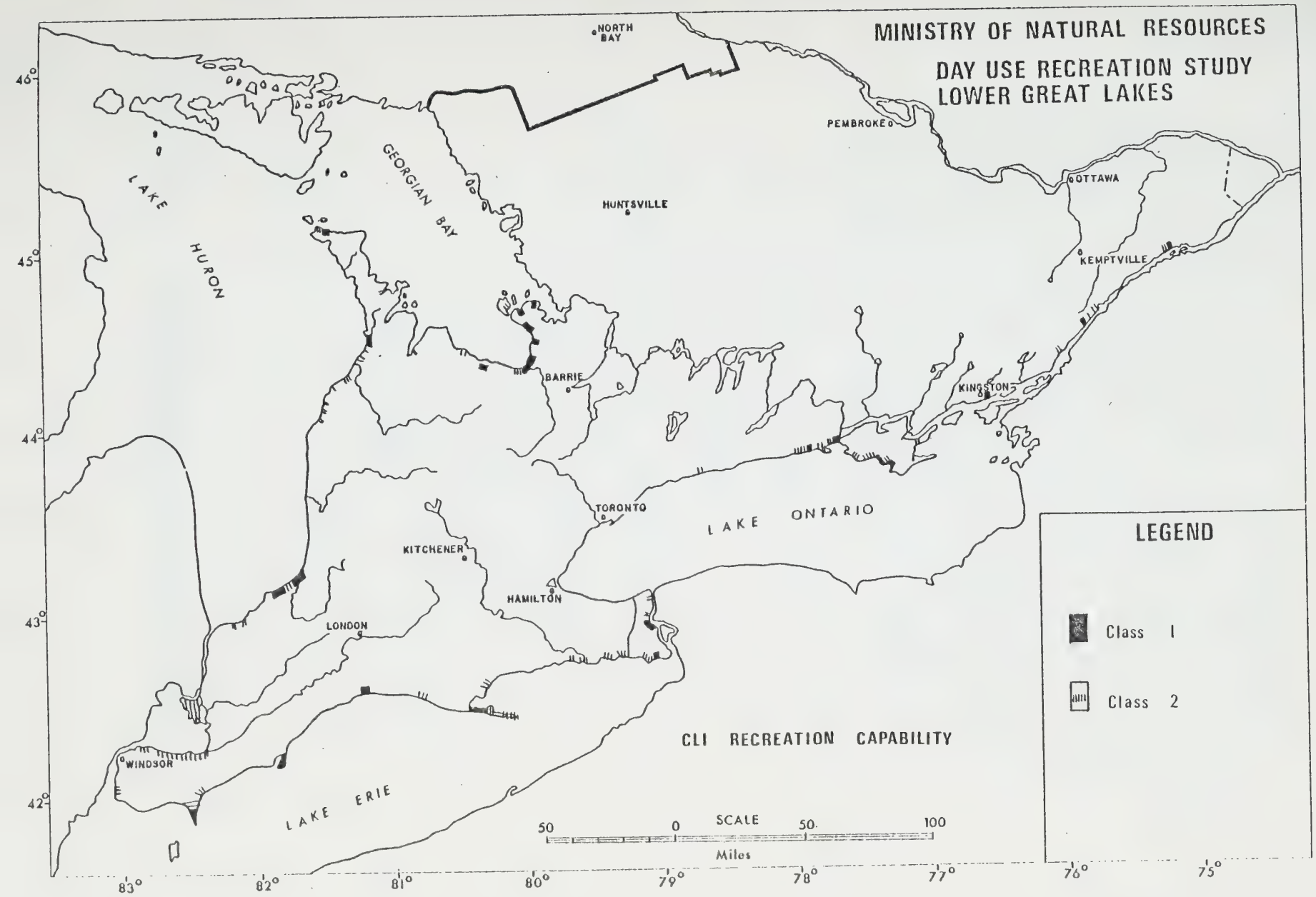
3. PROPERTY VALUES

Shoreline property values have been considered to provide an indication of relative land prices throughout the study area. The economic feasibility of proposed recreational access is related to the cost of land.



MAP NUMBER 16


FEDERAL AND PROVINCIAL PARK LANDS
FEDERAL (F) and PROVINCIAL PARKS
PARKS COMMISSION LANDS



MAP NUMBER 16

Property value information has been obtained from the 1973 Shore Damage Survey[1], supplemented by data for the Niagara River from the Niagara Regional Assessment Office. The values obtained are either market, assessed, or market and assessed, and are available as such by county only. (Indicated on Map 17). It should be recognized that these values therefore are not consistent throughout the study area, and that assessed values cannot be compared proportionately to market values. With this in mind, the shoreline values given by CCIW will be discussed within the categories of:

(1) Higher than $2000/per metre

(2) $500-2000/metre

(3) less than $500/metre

The highest property values ($2,001/metre and greater) along the shoreline are concentrated at:

1) Hamilton to the eastern boundary of Metropolitan Toronto inclusively.

2) The Windsor shoreline and east

3) The Kingston shoreline, and

4) The south western end of the Bay of Quinte, opposite Trenton.

In addition, there are scattered sections at Sarnia and south along the St. Clair River.

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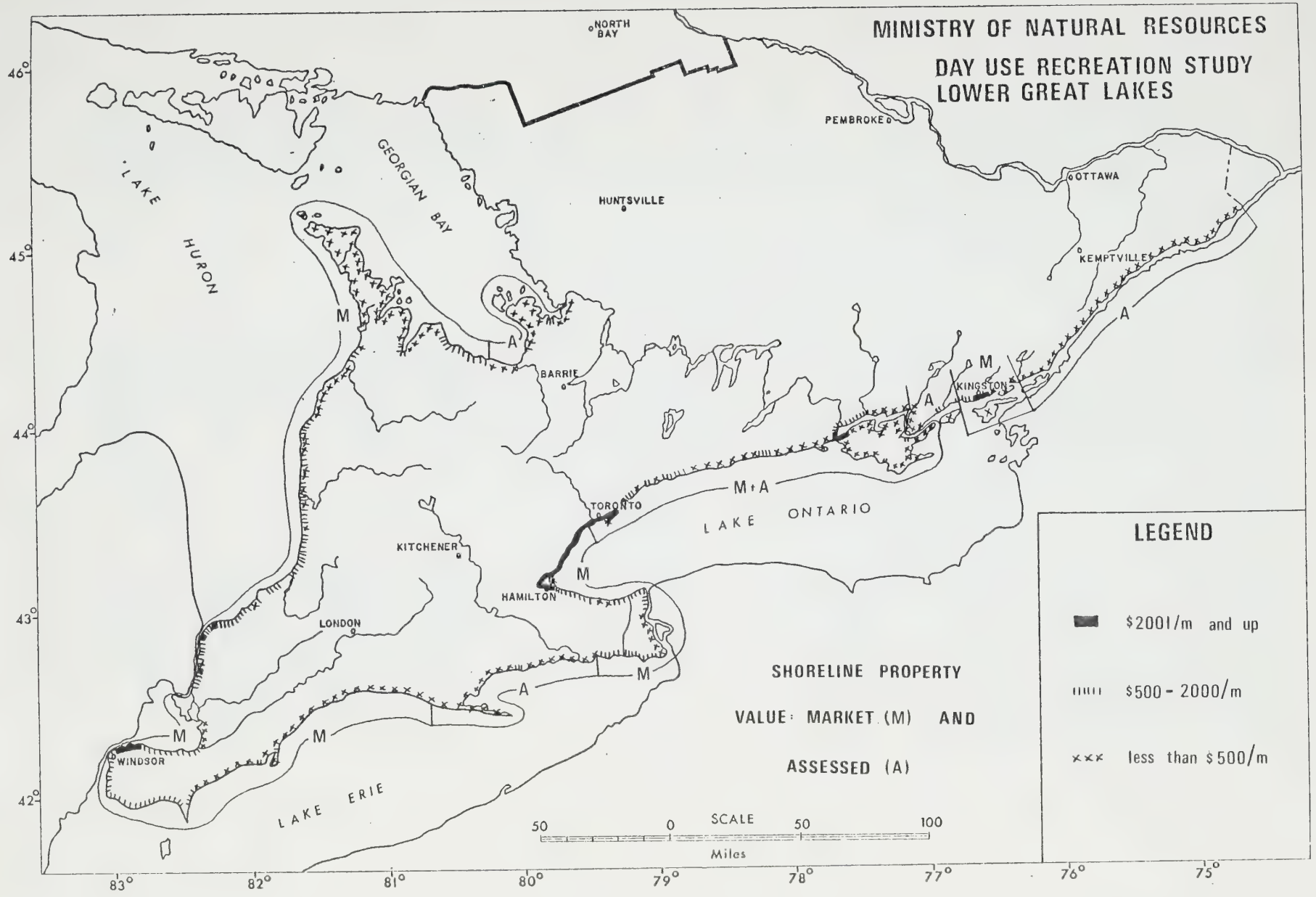
1 Boulden, R.S., ed, Canada/Ontario Shore Damage Survey, Federal Ministry of the Environment, Natural Resources 1973. 1:10,000 mapping.



MAP NUMBER 17

Those lands of $501-2000/metre are found principally on: 1) the western shores of Nottawasaga Bay, 2) most of the Lake Huron shoreline south of Kincardine to Port Lambton at the lower end of the St. Clair River, 3) the southern shore of Lake St. Clair to Point Pelee, excluding the Windsor shoreline and, 4) the southern and northern shores of the Niagara Peninsula. Smaller scattered areas are found along the north shore of Lake Ontario at Oshawa, Cobourg, Trenton to Belleville and on the Kingston periphery.

The remainder of the shoreline is less than $500/metre or lacks information.

4. OFFICIAL PLANS & AUTHORITY PLANS

Most of the study area is covered by the official plans of municipalities. Of the 122 townships in the study area, 45 do not have official plans approved as of March 30, 1976. The townships without plans are:

Flos	Dunn	Sidney
Sydenham	Sherbrooke	Thurlow
Sarawak	Moulton	Richmond
Keppel	Wainfleet	Fredericksburgh North
Bruce	Humberstone	Adolphustown
Kincardine	Louth	Amherst Island
Huron	Clarke	Wolfe Island
Rochester	Hamilton	Howe Island
Mersea	Murray	Front of Leeds & Lansdowne
Orford	Hillier	Front of Escott
Aldborough	Hallowell	Front of Yonge
Dunwich	Athol	Matilda
Malahide	Marysburgh South	Williamsburgh
Bayham	Marysburgh North	Onasbruck
Cayuga South	Sophiasburgh	Cornwall

In addition, the following municipalities have no approved plan as of March 30, 1976:

Victoria Harbour	Courtwright	Picton
Port McNicholl	Belle River	Deseronto
Wasaga Beach	Port Burwell	Cardinal
Wiarton	Newcastle	Iroquois
Grand Bend	Wellington	Morrisburg

Where official plans are approved, it will normally be assumed that the recreation component of such plans will not be challenged by the Great Lakes Study.

Where the official plans are under preparation or awaiting approval, the results of the Great Lakes Study may well be used as an input.

Parts of the Lower Great Lakes shore are also covered by Conservation Authority plans. Examples are:

1. Owen Sound Bayshore Development Plan
2. Lake Huron Waterfront Study (for Lambton County)
3. Windsor Waterfront Plan
4. Lake Erie Shoreline Study (for Essex County)
5. Halton-Wentworth Waterfront Study
6. The Metropolitan Toronto and Region Waterfront Plan
7. Quinte Bayfront Plan

5. ONTARIO HYDRO

Ontario Hydro is one of the major users of the Great Lakes shore. At present 12 major generating stations are established, or approved in principle, in the Lower Great Lakes. Two stations are hydraulic, three are nuclear and the balance are powered by fossil fuels (See Map 18).

Ontario Hydro is in the process of making plans for further development of power stations along the Great Lakes shore. Large areas of shoreland have been identified as potential zones for major generating stations, however final plans are still to be completed so some of the zones now identified may well be deleted and others added.

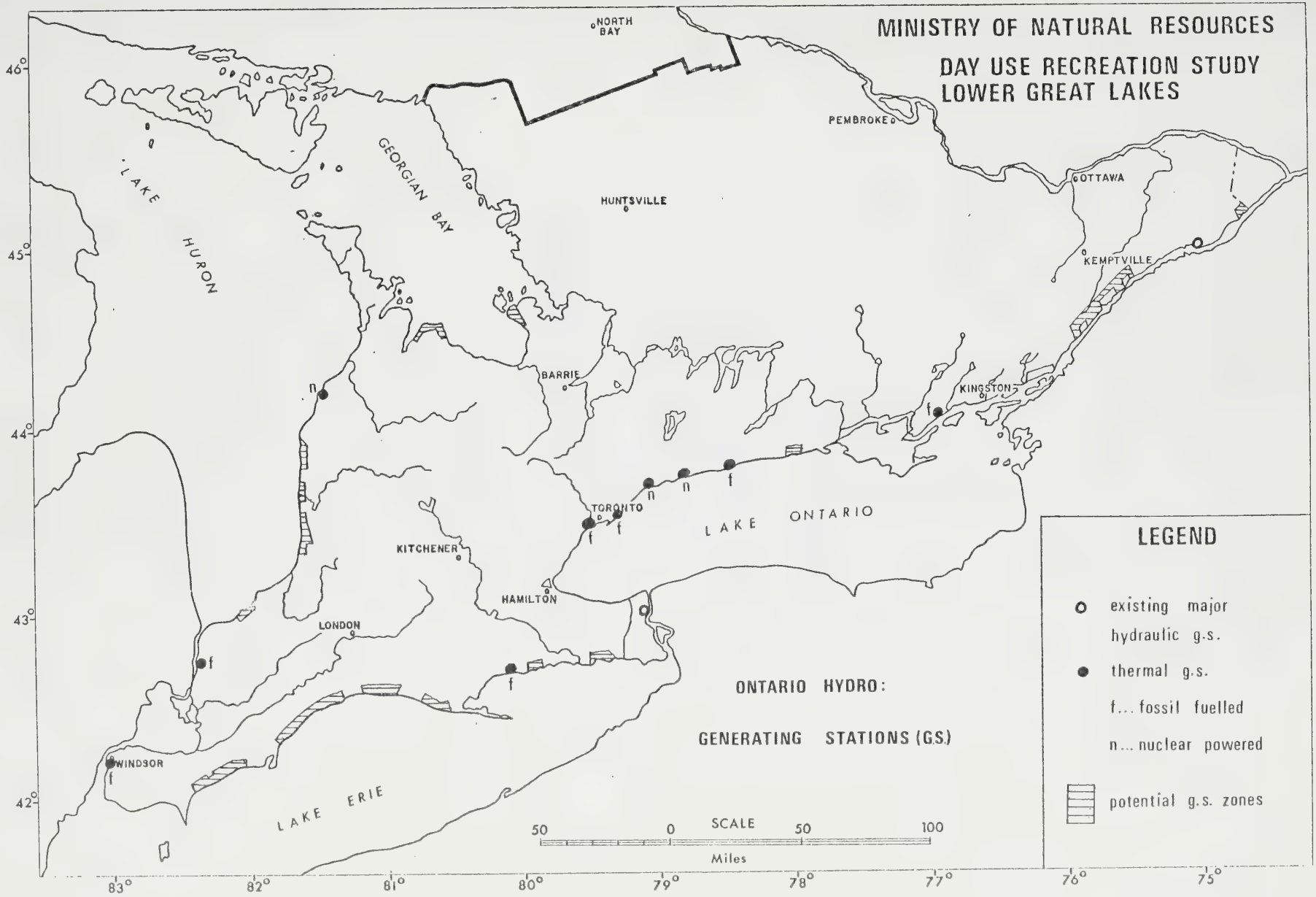
Ontario Hydro policy is to allow recreational use of its lands subject to the following provisions:

1) The public is not exposed to any hazard.

2) The public is controlled from entering areas where it could damage or effect the Hydro system.

3) the local municipality and its residents agree to such use.

Ontario Hydro wishes to control land use within 3,000 feet of nuclear generating stations, but will allow day-use recreation much closer. Heavy water plants are another matter.



MAP NUMBER 18

Here, the Atomic Energy Commission of Canada advocates that population densities be kept to 25 persons or less per square mile. While day use recreation is considered near heavy water plants, extended use recreation which involves camping overnight is not.

6. PROBLEMS & ISSUES

The following groups have provided input to this section from the knowledge of public concerns:

1. The Ministry of Natural Resources' district and regional staff,
2. The Conservation Authority's staff,
3. Selected Municipalities' staff,
4. The Parks Commissions' staff,
5. Selected special interest groups, and
6. Other relevant Provincial Ministry and Crown Corporation staff.

Discussions with these people provided information on the following problems and issues.

A. EASTERN REGION

Thousand Islands Park

The main issue is the proposed expansion of the Thousand Islands National Park from its present size of 1.6 square miles. The expansion area includes lands

from Gananoque to Mallorytown Landing or Jones Creek including most of the islands and some portion of the mainland. Parks Canada has not named the specific acquisition areas. There is strong local concern, over the issue of possible expropriation, which has led to the formation of citizens groups. Parks Canada is holding public meetings to determine citizen concern.

Wellington Harbour

Wellington Harbour, which is located on the western shore of Prince Edward County, has been for years a port of refuge and more importantly, a commercial fishing harbour. In recent years the harbour mouth has been silted closed. The local residents and cottagers have been pressuring various government agencies to reopen the harbour channel because they feel not only would it be an important fishing port, but there are no harbours of refuges on the exposed west and south shores of Prince Edward County.

Day Use Along the St. Lawrence

The residents of the eastern Ontario portion of the St. Lawrence River, particularly in Lancaster Township, do not wish their tax dollars to be spent on further day use access because any development would

encourage non-resident use, and the residents are very resentful of this. They would rather put their money into community developments such as baseball diamonds, skating rinks, etc.

Weeds & Garbage at Point Mouillee

Point Mouillee in Lancaster Township creates an eddy effect, slowing down the current which causes a weed and garbage accumulation in the water. The people in the area have created an association to determine solutions but are willing to absorb only half of the cost.

Need for Boating Facilities

East of Brockville the river currents are swift and therefore much of the shoreline area is unsuitable, and in some cases unsafe, for swimming. For example, the sand of the beach at Morrisburg is constantly shifting downstream. However, the area lends itself to boating and present boating facilities in the St. Lawrence area from Kingston to the Quebec border cannot meet the demand for boating launching and mooring facilities. The problem is particularly acute in Kingston, Gananoque, Brockville, Prescott and Cornwall.

Need for Viewing Opportunities

East of Gananoque much of the local residents wish to have access to the St. Lawrence for viewing. Most communities, large and small, along the shore want access and open space areas for viewing as the international shipping traffic is of great interest.

B. SOUTHWESTERN REGION

Need for Boating Facilities

The western Georgian Bay and Lake Huron shoreline according to the local residents, has an ample supply of day use access opportunities with the exception of boating. Because of the rainbow trout runs around Wiarton, Owen Sound, Southampton, Meaford and Thornbury, more boat launching facilities are required in these areas mostly for the non-local resident demand.

Bathing Access & Cottager Conflicts

Although the water is too cold for swimming on the east side of the Bruce Peninsula one area, Dunks Bay, has protected warmer waters. This area, with the exception of a sixty-six foot road allowance, is ringed with cottages. The local residents useage of the road allowance and encroachment on to the coinciding private property frontage leads to conflicts with the cottagers.

Non-Resident Users

The important issue in the area is that although the local residents are well supplied with opportunities and facilities, much of these are used by outsiders from Ontario and American urban centres. Therefore, local residents will not receive full benefit of additional facilities.

Need for Access

In the more southern area of Lake Huron the problem of access is increased because so much of the shoreline is privately owned. Sarnia residents in particular, want more boating access. Although the southern Lake Huron shore is exposed and the currents in the St. Clair River near the Blue Water Bridge are too swift the essence of the problem is that private development along the shoreline has blocked out public access for boating.

Essex County has a major problem. Despite the relatively high number of opportunities there is a large surplus of demand from both the Ontario and American urban centres. Because of the pollution and swift currents in the Detroit River demand is transferred to the Lake Erie and Lake St. Clair shorelines. Since much of the shoreline is in private residential ownership there is an acute shortage of access.

At present the local residents do not perceive problems with access along the Lake Erie shoreline east of Essex County to the eastern border of Haldimand-Norfolk. With the completion of the large industrial complex at Nanticoke and the corresponding population influx the demand for day use water oriented activities may result. However, these future demands for shoreline access are extremely difficult to estimate since the future population size for this area is uncertain at this time.

C. CENTRAL REGION

Need for Bathing Access

Bathers are attracted to the sandy beaches on the west side of Tiny Peninsula via road ends, but because of the lack of space available, both for parking and recreating, adjacent cottage properties are often trespassed and abused. It is generally felt, by the residents of Simcoe County, that improved access to the shoreline is needed, however, the smaller municipalities resent the imposition of policing and maintaining public lands when they are heavily visited by Torontonians.

On the eastern side of Tiny Peninsula, there are presently twenty-seven public access points to the shoreline from Port Severn to Sawlog Point. Additional facilities here should be added or existing ones improved. Again much of the recreational access is used by visitors outside the area as the permanent residents are farm oriented with a lack of interest in shoreline recreation.

Access to Lake Erie & the Niagara River

The Niagara district includes the Niagara Peninsula, allowing access to Lake Erie, the Niagara River and Lake Ontario. Lake Erie is more suited for recreation than Lake Ontario because of the warmer water temperatures and scattered sandy beaches but the nearby unbroken linear cottage development hinders access. There is also the problem of extremely high land values east of Port Colbourne and 95 percent American owned cottages. West of the Grand River, there is high recreational demand, particularly in close proximity to the James N. Allan Provincial Park, but the waterfront is lined with dense cottage development. Where cottages do not represent the major restriction to shoreline access, rocky bluffs are encountered.

The Niagara Parks Commission controls a 35 mile strip along the edge of the Niagara River. Boating and swimming potential here is limited to the extreme ends of the river as strong currents and pollution restrict these activities. It is felt that insufficient access points are available to take full advantage of the sport fishery along the river.

Access to Lake Ontario

On the side of the Niagara Peninsula, Lake Ontario waters are colder and rougher than Lake Erie. This stretch of shoreline has no road allowances to the shoreline and has only four public bathing areas. The opinion was voiced that future recreation access should be directed preferable to the Lake Erie shoreline as its physical resources, as well as an adjacent low speed scenic highway, make it more conducive to recreation than Lake Ontario.

From all the agencies contacted in the Cambridge District, the feeling generated was one of a greater need for recreational access along this stretch of shoreline. If more facilities were available, the recreational use of the area would increase. In particular, public lands should be acquired at Bronte and Oakville Harbours, along with land at an unused hydro site between Mississauga and Oakville.

A major problem of providing public marina facilities along this shore stems from the fact that most of the shore waters are held in private waterlot ownership.

The threatened sport fishery in the area may decrease the need for recreational access to the shoreline as the other activities of bathing and boating may be hindered by cold and rough waters, respectively.

Burlington Beach Strip

Perhaps the most pressing issue in this district originates with the Hamilton and Halton Conservation Authorities' desire to acquire land on the Burlington Beach strip for a public beach. To date, several homes have been acquired but this overall plan is pending provincial approval and financial support. These two agencies are very adamant that provincial spending on further and continuous planning in this area results in wasted time and wasted money which could otherwise be directed towards implementing this scheme.

Central Lake Ontario

The public feels the waters on Lake Ontario are too cold, dirty and rough for recreational use. Because many residents from Pickering to Brighton are physically cut off from the shoreline by Hwy. 401 and the C.N.R. tracks, they are virtually not conscious of its potential for recreation. Furthermore, the picturesque Kawartha Lakes attract the major proportion of recreation uses from this area.

In spite of the public's feelings as stated above, the agencies contacted felt that shoreline properties should be acquired for public use.

D. THE PRESENT ANGLING SITUATION

The physical alteration of land and water resources which has accompanied human population growth in southern Ontario, has been paralleled by a progressive depreciation of fish stocks in the Great Lakes. The collapse of major stocks of valuable fish species in the Great Lakes was associated with the invasion of the sea lamprey, introduction of exotic fish species, selective over-fishing, eutrophication and habitat destruction. In Lake Erie, for example, the lake herring, whitefish and blue pike have virtually disappeared, to be replaced by less desirable species such as the yellow perch and rainbow smelt.

Lake Huron including Georgian Bay

The fish community of Lake Huron is presently dominated by alewife, rainbow smelt, suckers, chub, whitefish and yellow perch. In addition, there are locally important populations of yellow pickerel, smallmouth bass, pike and coarse fish such as carp. The development of rainbow trout and splake populations in Lake Huron has accompanied recent successes in the sea lamprey control program. Rainbow trout plantings by Ontario and Michigan have resulted in sizable runs of fish in the Sauble, Saugeen, Lucknow, Maitland and Bayfield Rivers flowing into Lake Huron. Rainbow trout angling has occurred in the tributaries of southern Georgian Bay for many years. In recent years, the species has reached new levels of abundance as a result of improved sea lamprey control and protection of designated fish sanctuaries. A number of exotic salmonids, including brown trout, Atlantic salmon and several species of Pacific salmon have been introduced into Lake Huron by American fisheries agencies.

Establishment of the highly selected, hybrid splake may well spur an offshore fishery similar to the lake trout fishery which historically operated out of Meaford, Thornbury and Owen Sound.

Lake St. Clair, St. Clair River, Detroit River

Lake St. Clair, the Detroit and St. Clair Rivers contain large populations of a wide variety of warm-water species. Yellow pickerel, yellow perch, smallmouth bass and maskinonge are particularly important to the recreational fishery. Abundant populations of several "panfish" species, carp and suckers are presently underutilized.

Lake St. Clair and the Detroit River are presently among the most heavily fished waters in the province. Declining levels of heavy metals in the fish of Lake St. Clair have been encouraging, and will undoubtedly increase the demand for access to waters on the doorstep of several million potential anglers.

Lake Erie and the Upper Niagara River

In Lake Erie, yellow perch, rainbow smelt, alewife, and freshwater drum are the most numerous species. The depressed stocks of yellow pickerel are showing signs of resurgence. Sizable populations of smallmouth and largemouth bass, pike and various "panfish" species occur in several areas of the lake.

Yellow perch, panfish, smallmouth bass and to a lesser extent, yellow pickerel, provide most of the angling in these waters. The access problems along the

north shore of Lake Erie have been well documented. Improvement of water quality and the status of fish communities in Lake Erie will undoubtedly increase the pressure for day-use access by the several million Ontario and New York residents living within day-use driving distance.

Lower Niagara River/Western and Central Lake Ontario

In the deep, western basin of Lake Ontario, rainbow smelt and alewife predominate. However, recent sea lamprey control and rehabilitation efforts are allowing the development of important trout and salmon populations.

The initial results of the Ministry of Natural Resources coho program have illustrated the type of angler congestion and public access problems that can develop in response to a revitalized fishery resource.

Further provision of boating access is required on the Lake Ontario shoreline, particularly in the vicinity of the Credit and Humber River mouths, if we are to be successful in encouraging the development of a lake fishery for Pacific salmon. Recent planting of coho and chinook salmon at Bronte Creek has similar implications for access for day-use angling.

Success in establishing an offshore sport fishery for splake in western Lake Ontario will add to the pressure for boating access.

While several streams on the north central shore of Lake Ontario support migratory runs of rainbow trout, recent stream enhancement work on Wilmot Creek indicates that the magnitude of these runs could be increased considerably. The present stream and river mouth trout fisheries will probably expand in the future to include more of the Lake Ontario waters in the vicinity of migratory routes.

Eastern Lake Ontario - St. Lawrence River

The wider variety of species which occurs in eastern Lake Ontario includes yellow pickerel, yellow and white perch, smallmouth bass, pike, American eel, carp and "panfish".

The Bay of Quinte, in recent years, has been subject to severe deterioration of water quality and subsequent reduction of valuable fish stocks. However, certain localities are presently subject to heavy angling pressure from residents of both Ontario and New York state. If improvements in water quality are achieved and stocks of desired fish species are rehabilitated, the need for day-use angler access will be more pronounced.

Similarly, improved water quality in the St. Lawrence River, particularly near large urban centres, will serve to increase participation in day-use angling in those areas of the river physically suitable for sport fishing.

E. THE BRUCE TRAIL ASSOCIATION

This association has made a strong appeal to the Ministry of Natural Resources for the preservation of open space and sensitive areas. Areas of specific concern are the Bruce Peninsula, Jordan Harbour, and the Valleys of the Fifteen Mile and Twenty Mile Creeks.

F. R.E. LAW CRUSHED STONE LTD. - QUARRY CONTROVERSY

West of Gravelly Bay is a privately operated sand and gravel quarry judged to be exhausted within the next five years. The quarry operation is currently in the process of excavating sand hills which are believed to be essential for the maintenance of a beach environment. The Region of Niagara is most concerned that this vital dune complex will be destroyed. The problem is further complicated by the strong possibility of severe flooding to adjacent lands, some of which have already occurred. The Niagara Peninsula Conservation Authority hopes to acquire this land for future recreational use.

G. LAKE ONTARIO - MARTINDALE POND

The Royal Canadian Henley Rowing Club wants exclusive use of the Martindale Pond near St. Catharines for purposes of rowing practise and racing. Consideration is being given to the Rowing Club as this pond is recognized as one of the best in Canada for rowing.

V. POLICY OPTIONS & RECOMMENDED GUIDELINES FOR DEVELOPMENT

So far, this report has dealt with background information concerned with day use access to the Lower Great Lakes. It is now appropriate to outline the way this information can be used to evaluate development.

1. THE SUPPLY OF RECREATION OPPORTUNITIES

The question to be answered under this heading is:

> What should the supply of recreation opportunities be for each of the 25 population centres identified in Chapter III, and should a minimum standard of recreation opportunities be established?

Several options to answer this question are outlined below:

A. Establish a priority list with no minimum standard but with top priority to areas which now have lowest per capita supply and lowest priority to areas which now have the highest level of supply.

This is a very simple procedure and would require no significant decision making. A rank order list of the 25 population centres is given in Tables 7, 8 and 9 (pages 53, 55 & 57) for the three recreation components described in Chapter III.

Problems with this approach are that it may not be politically acceptable and that it provides no long range planning tool. Large rapidly growing population centres might well be top priority to the nearly permanent exclusion of all smaller centres.

B. Set a Minimum Standard of Per Capita Supply

Priority would be given equally to all areas that are now below the standard.

This option might be politically more acceptable than option 'A', since there could be more of a spread to the priority. This option would also provide a useful long range planning tool because projections could easily be made to indicate the future land requirement based on population projection.

The major problems with this option are that it is very difficult to do and could well be impossible to do without a complete and comprehensive study of all the other recreation activities in the province. For example, the question arises of whether or not we should expect a minimum standard for bathing and boating when we do not have one for a host of other activities like going to the museum or art gallery in Toronto.

C. Establish Several Minimum Standards

This option would set one standard for Toronto, one for other large population centres and one for the balance of Ontario.

The advantages and disadvantages of this option are similar to option 'B', except it could be somewhat more acceptable politically.

A variation of this option which would be quite pragmatic is to maintain the present relative level of supply per capita and give priority only to those areas that have a decreasing supply per capita due to their population growth. This would amount to setting 25 different standards, however it could be quite easy to do since the standard would be the present situation in terms of supply per capita.

The Great Lakes Access Working Group has discussed the options and concluded to adopt option 'A' as an interim guideline. It was considered to be premature to attempt to set standards for the relatively few recreation activities in this study when an overall policy for recreation in the province is still not developed.

IT IS THEREFORE RECOMMENDED THAT HIGHEST PRIORITY BE GIVEN TO PROPOSED DEVELOPMENTS IN AREAS THAT, AT PRESENT, HAVE THE LOWEST PER CAPITA SUPPLY.
(SEE TABLES 7, 8, and 9, PAGES 53, 55 & 57)

4. NODES

Past development along the Great Lakes has resulted in a pattern of open spaces and development nodes. It is considered desirable to preserve as much open space as possible.

THEREFORE IT IS RECOMMENDED THAT HIGH PRIORITY SHOULD BE GIVEN TO PROPOSED DEVELOPMENTS THAT ARE IN OR NEAR EXISTING NODES OF DEVELOPMENT (SUCH AS TOWNS, CITIES).

5. SENSITIVE AREAS

Sensitive areas are those that contain features whose preservation is the major theme of management. Sensitive areas could therefore result in partial restrictions to day use or in some cases in total restriction to day use.

Major sensitive areas at the provincial level of planning are:

(a) Georgian Bay

(b) Parks of the Bruce Peninsula including the Niagara Escarpment

(c) The major marshes of Lake St. Clair, the Detroit River and Lake Erie.

At the local level of planning there are a large number of sensitive areas, or recognized sensitive areas, as listed by township in Appendix 1.

IT IS RECOMMENDED THAT ALL PROPOSED DEVELOPMENTS THAT COINCIDE WITH SENSITIVE AREAS BE GIVEN EXTRA CAREFUL SCRUTINY AND DIRECTION BEFORE THEY ARE APPROVED.

6. THE SPORTS FISHERY AND WATER POLLUTION

Various parts of the Great Lakes are polluted to the extent that it may be not advisable to eat large quantities of the fish. This problem is not considered serious enough to prohibit sport fishing.

THEREFORE IT IS RECOMMENDED THAT WATER POLLUTION SHOULD NOT BE USED AS A NEGATIVE FACTOR IN DETERMINING THE PRIORITY OF ACCESS DEVELOPMENTS TO SPORT FISHING.

7. BATHING OPPORTUNITIES AND WATER POLLUTION

Water pollution is considered to be a detriment to bathing in the following areas:

A. Midland - Penetanguishene Harbour

B. Owen Sound Harbour

C. St. Clair - Detroit River System

D. Long Point Bay

E. Niagara River

F. Hamilton Harbour

G. Bay of Quinte

IT IS RECOMMENDED THAT PROPOSALS FOR BATHING ACCESS TO THE ABOVE AREAS BE GIVEN LOWER PRIORITY THAN OTHER AREAS.

8. RECREATION CAPABILITY, OPEN SPACE, AND SHORELAND PROPERTY VALUES

In the interests of economy it is recommended that, all other things being equal, highest priority be given to proposed developments that:

A. Are on highest recreation capability land (See Chapter II for the capability for angling and boating. The Canada Land Inventory indicates bathing capability),

B. Coincide with Open Space, and

C. Coincide with lowest property values.

9. SMALL CRAFT HARBOURS

The Great Lakes Study did not include a detailed study of small craft harbours. Rather individual facilities such as docks, marinas, picnic areas, etc., were inventoried and details concerning individual activities are being assessed.

IT IS RECOMMENDED THAT SMALL CRAFT HARBOURS WILL BE INCLUDED OR RELATED TO THIS STUDY ONLY TO THE EXTENT THAT DAY USE BOATING OCCURS IN OR FROM THESE FACILITIES. A PROPOSAL'S PRIORITY WILL THEREFORE BE RELATED TO THE PRIORITY ASSIGNED TO DAY USE BOATING.

APPENDIX

SENSITIVE AREAS BY TOWNSHIP

This section contains a list of the sensitive areas, within the study area, that could potentially be affected by the kinds of development related to day use recreation.

The sensitive areas are described used the following code:

IBP - International Biological Program
NRC - Nature Reserve Candidate (Parks Branch)
v - vegetation
w - wildlife
g - geological
h - historical
c - complexes

TAY TWP.

w Matchedash Bay
w Sturgeon Bay
w Hog Bay
v Sucker Creek Point
g Waubaushene Beaches N.R.C.

TINY TWP.

c Christian Channel Beaches
c Giants Tomb Island
c Cedar Point Raised Beaches
v Yarwood Point Peatland Forest
v Georgian Beach Sand Hills
g Penetanguishene Harbour Beaches N.R.C.
g Methodist Point N.R.C.
g Giant's Tomb Island N.R.C.

SUNNIDALE TWP.

w Nottawasaga River
g Wasaga Beach Raised Beaches N.R.C.

NOTTAWASAGA TWP.

w Nottawasaga Island

COLLINGWOOD TWP.

v Blue Mountain Slope Forests
w Long Point Wetlands
g Delph Point Fossil Nature Reserve
c IBP Site

COLLINGWOOD - ST. VINCENT TWP.

v Peas March
g Whitby - Georgian Bay Contact

ST. VINCENT TWP.

v East Meaford Creek
g Sunnyside Beach Glacial Bluffs
g Meaford Tank Range Clay Banks
w Vail Point March
g Cape Rich NRC
v Sucker Creek Valley NRC

DERBY TWP.

v Inglis Falls Forest
v Pottawatomi River

SARAWAK TWP.

h Catherine Sutton's Grave Site

KEPPEL TWP.

v Mud Creek Wetlands & Escarpment
h Remains of Chief Peter Jones' Log Cabin - 1855
g Limestone cave
g Bruce's Cave
w Gleason Brook Fishing & Hunting Area
v Kemble Forest NRC
g Slough of Despond NRC
v Skinner Bluff NRC
v One IBP Site

ABLEMARLE TWP. (East Side)

v Malcolm Bluffs IBP Site
g Cave
v Sidney Bay Bluff & IBP Site

CAPE CROKER INDIAN RESERVE

v King's Point IBP
v Jones' Bluff IBP
v Cape Croker IBP
g Raised Beaches

EASTNOR TWP. (East Side)

v Barrow Bay South
v Cape Poulett IBP
g Abandoned Waterfall with Potholes
v Hope Ness NRC & IBP Site
v Cape Dundas IBP
g Potholes
v Lion's Head - Gun Point IBP
g 200 Pothole Nature Reserve
g Cove with Pillar Like Support
g Hanging Bridge with Flowerpot Formation
v Barrier Island NRC
v Smokey Head NRC

LINDSAY TWP. (East Side)

v Orchid Bed
v Otter Lake IBP
v Dyer Bay IBP
g Devil's Monument - Flowerpot Formation
h Ruins of Saw Mill of Horace Lymburner - 1881
g Disappearing Stream and Cave
g Balance boulder on Escarpment
h Wingfield Basin Shipwreck
v Cabot Head IBP
v Lymburner Lake IBP
v Gillies Lake - Cabot Head NRC

ST. EDMUNDS TWP. (East Side)

v Quenlin Lake IBP
v George Lake IBP
v Bartley Lake IBP
v Lowe Andrew Lake IBP
v Cove Point IBP
g Smuggler's Cave
v Overhanging Point IBP
g Cave, Natural Pool, Stone Arch
g Overhanging Cliff
v Cameron Lake - Northeast Bay IBP
g Coastal Flowerpot Formation
g Flowerpot IBP
v Bears Rump Island IBP
v Cove Island NRC
v Russell Island

ST. EDMUNDS TWP. (East Side) (Cont'd.)

g Boulder Beach and Caves
v Driftwood Cove IBP
g St. Edmunds River Cave
g Disappearing Stream and Cave
h Tobermory Harbour & Ship Wrecks
h China Cave Ship Wreck
v Hay Bay
v Tobermory Bog IBP
v Emmett Lake - Gillies Lake NRC

ST. EDMUNDS TWP. (West Side)

v Dorcas Road IBP
v Eagle's Blueberry Bog IBP
h Remains of Wooden Flume at Old Mill Site
v Corisande Bay IBP and NRC
v Cape Hurd NRC
g Barney Lake NRC
v Dorcas Bay NRC
v William Henry Marsh
v Warner Bay
v Johnson Harbour to Pine Tree Point NRC

LINDSAY TWP. (West Side)

v Zinken Island IBP
v Greenough Harbour IBP
v Ira Lake IBP
v Little Pine Tree Harbour IBP & NRC
v Bradley Harbour to Greenough Point NRC

EASTNOR TWP. (West Side)

v Old Woman River IBP
h Black Creek Site
v Lyal Island IBP and NRC
v Crane Island IBP
v Stokes Bay IBP and NRC
v Black Creek

ABLEMARLE TWP. (West Side)

v Sucker Creek NRC
v Petrel Point - Howdenvale Bay IBP and NRC
v,g Beattie Lake NRC
v Fishing Island NRC
v Hodgins Lake NRC
v Red Bay IBP

AMABEL TWP.

h 1st Building Erected in Bruce County (1830 - 1850)
v Oliphant March
h Chantry Island Lighthouse
g Maryville Lake NRC

SAUGEEN INDIAN RESERVE

v Chief's Point IBP
h Chippawa Hill Indian Mission Church

SAUGEEN TWP.

h Southampton Archeological Site
h Ruins of McNiel Mansion
h Nodwell Site Iroquois Village
h Millpond, Barn, Silo, Cedar Shingle Mill
v MacGregor Point IBP

BRUCE TWP.

v Inverhuron Provincial Park IBP
h Rocky Ridge Site - Archeological

KINCARDINE TWP.

v North Lorne Shoreline IBP
v South Lorne Shoreline IBP

HURON TWP.

w Pine River - Rainbow Trout
v Clarke Point IBP

COLBOURNE TWP.

v,w Maitland River IBP

GODERICH TWP.

w Bayfield River - Rainbow Trout
g Porter Hill NRC
v 2 IBP Sites - Vayfield River

BOSANQUET TWP.

h Pinery Archeological Sites
v 6 IBP Sites in or near Pinery Provincial Park
g Ravenswood NRC

MOORE TWP.

h Grave Site of Froome Talford's Wife

TILBURY NORTH TWP.

h Thames Lighthouse
v Tremblay Beach IBP

SANDWICH WEST TWP.

v One IBP Site

MALDEN TWP.

v One IBP Site

MERSEA TWP.

v 3 IBP Sites

HARWICH TWP.

h Old Railway Yard
v Shrewsberry Sandy Loamland
c Rondeau IBP

DUNWICH TWP.

h St. Peter's by the Lake
h Talbot Estate
v John E. Pearce IBP

YARMOUTH TWP.

g Sparta NRC
w Hawk Cliff
g Catfish River IBP

BAYHAM TWP.

v Vienna IBP
h Iroquois Beach Provincial Park - Archeological Site
w Otter Creek
v Iroquois Beach IBP

MUNICIPALITY OF NORFOLK

g Houghton Sand Hills
w Clear Creek
w Big Creek
v Long Point IBP

MUNICIPALITY OF DELHI

v 4 IBP Sites near Turkey Point
h Van Norman House (Architecture)
v Spooky Hollow Nature Sanctuary
w Fisher's Creek
h Isaac Vail House

MUNICIPALITY OF NANTICOKE

v Nanticoke Creek Marshland IBP
v Sandusk Creek IBP

MUNICIPALITY OF HALDIMAND

g Selkirk Fossil Bed

MUNICIPALITY OF DUNNVILLE

w Grand River Marshes

WAINFLEET TWP.

g Rock Point Provincial Park - fossils
v Grabell Point
c Morgan's Point
v Burnaby - violet
g West of Sugar Loaf Point - dunes

MUNICIPALITY OF PORT COLBOURNE

w Gravelly Bay Nesting Area
g Pine Crest Point - fossils

MUNICIPALITY OF FORT ERIE

v Point Abino IBP
h Windmill Point
h Waverly Hotel (ca 1800)
v Miller's Creek
v Erie Beach IBP
g Ridgeway NRC

MUNICIPALITY OF NIAGARA FALLS

w Upper Niagara River
h Navy Island Shipyard
v Usshers Creek
v Navy Island IBP
v 3 Other IBP Sites
c Niagara Falls NRC

MUNICIPALITY OF NIAGARA-ON-THE-LAKE

c West of Niagara-on-the-Lake
w Port Weller - Bird Sanctuary

MUNICIPALITY OF LINCOLN

v Jordan Harbour NRC
v Twenty Mile Creek IBP and NRC
v Cave Spring NRC

MUNICIPALITY OF GRIMSBY

v Fruitland - Winona NRC

MUNICIPALITY OF HAMILTON

v Redhill Creek Marsh

MUNICIPALITY OF DUNDAS

v Cootes Paradise NRC

MUNICIPALITY OF BURLINGTON

w Bronte Creek
v One IBP Site - North Shore of Hamilton Harbour

MUNICIPALITY OF OAKVILLE

v 2 IBP Sites

MUNICIPALITY OF MISSISSAUGA

w Rattray Marsh
v Lorne Park IBP

BOROUGH OF SCARBOROUGH

w Highland Creek

PICKERING TWP.

v Rouge River Marshes
w Frenchman Bay
w Duffin Creek
v One IBP Site

MUNICIPALITY OF AJAX

v 2 IBP Sites

WHITBY TWP.

v Shoal Point Marsh
w Whitby March IBP
w Thickson's Marsh IBP

MUNICIPALITY OF OSHAWA

w Oshawa (Second) March IBP
w Rumphouse Marsh
w Cedar Dale

MUNICIPALITY OF NEWCASTLE

w Bowmanville Marsh IBP
v Newcastle Marsh IBP
v 2 Other IBP Sites

HOPE TWP.

w Willow Beach
v Port Britain IBP

HAMILTON TWP.

w Carr Marsh IBP
g Cobourg - Fossils

CRAMAHE TWP.

w Colbourne Creek
w Lakeport Creek
w Salem Corners

BRIGHTON TWP.

w Presqu'ile Provincial Park Wilderness Area and IBP
w Gosport Dear Yard
w Gull Bar and Bluff Island
w Butler and Smithfield Creek

MURRAY TWP.

w Mayhew Creek
h Indian Island

PRINCE EDWARD COUNTY

w Bay of Quinte

AMELIASBURGH TWP.

w Mountain View
c Grape Island
c Roblin Mill Pond

AMELIASBURGH - HILLIER TWP.

w Weller's Bay, Sandbar and IBP
w Weller's Bay to North Beach
w Consecon Lake and Marsh

HILLIER TWP.

h Scotch Bonnet Lighthouse
w Nicholson Island and Scotch Bonnet
w Pleasant Bay
w Huyck Point
w North, Pleasant and Huyck Point

HALLOWELL TWP.

v,g The Sandbanks IBP
w West Lake
w Wellington Bay
g Picton Esker

ATHOL TWP.

v,g Outlet Beach IBP
w East and Spence Lake, including IBP Site
h Salmon Point
w Point Petre
g Bloomfield - Beaver Meadow NRC

SOUTH MARYSBURGH TWP.

v False Ducks Island IBP
w Black River IBP
v McMahon Bluff
w Long Point
w Main Duck Island
v Yorkshire Island

SOUTH AND NORTH MARYSBURGH TWP.

w Waupoos Island

SOPHIASBURGH TWP.

g Muscote Bay

SIDNEY TWP.

w Trent River

THURLOW TWP.

w Blessington Creek

TYENDINAGA TWP.

w Salmon River
w Marysville Creek

RICHMOND AND NORTH FREDERICKSBURGH TWP.

w Long Reach

SOUTH FREDERICKSBURGH TWP.

w Hay Bay

ADOLPHUSTOWN TWP.

v Armstrong Peninsula
w Adolphus Reach

AMHERST ISLAND TWP.

w Big March
w The Bar and Brother Island

ERNESTOWN TWP.

v One IBP Site

KINGSTON TWP.

w Lemoine Point
w Carruthers Point
w Cataraqui Bay
v One IBP Site

WOLFE ISLAND TWP.

h Simcoe Island Lighthouse
w Wolfe and Simcoe Islands
h Farden Island
v,g Big Sandy Bay IBP
v Port Metcalfe IBP

PITTSBURGH TWP.

w Grassy and Killbirnie Creeks
v Eastview IBP
v Ravensview IBP

HOWE ISLAND TWP.

w Howe Island

FRONT OF LEEDS AND LANSDOWNE TWP.

h McNeil Farmhouse
v Landon Bay
v 3 IBP Sites South of Ivy Lea

FRONT OF ESCOTT TWP.

v Rockport

FRONT OF LEEDS, LANSDOWNE AND ESCOTT TWP.

c,v 1000 Island Chain, including IBP Site

FRONT OF YONGE TWP.

v N.E. Grenadier Island IBP

ELIZABETHTOWN TWP.

g Brockville Karst
h Indian Pictographs at Brockville

AUGUSTA TWP.

h Home of Dr. Solomon Jones
h Fort Wellington

EDWARDSBURGH TWP.

h Windmill - 1838

WILLIAMSBURGH TWP.

w Upper Canada Migratory Bird Sanctuary

CHARLOTTENBURGH TWP.

c Raisin River

LANCASTER TWP.

w South Lancaster